

ANNUAL REPORT

OF THE

Medical Officer of Health

TO THE

RURAL DISTRICT COUNCIL OF
BUCKINGHAM.

1899.



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TO THE
RURAL DISTRICT COUNCIL OF
BUCKINGHAM.

STEEPLE CLAYDON,
15TH FEBRUARY, 1900.

MISS HOLLAND AND GENTLEMEN,

I have the honour to present to you my second Annual Report as Medical Officer of Health, and in doing so allow me again to thank you for the careful consideration which you have given to the various reports and recommendations submitted to you during the past year.

*Number of
Meetings
attended.*

I have attended 23 Council Meetings and 16 Committee Meetings during 1899.

*Area and Geo-
logical Charac-
ter of the
District.*

The Buckingham Rural District comprises an area of 52,577 acres. This area is almost entirely occupied by the geological formation known as the Lower and Middle Oolite. Belonging to the former is the Great Oolite, which is a limestone sometimes soft and marly, and sometimes more compact. It is found at Shalstone, Stowe and Thornborough. Another member of the Lower Oolite is the Cornbrash, a rubbly limestone of a blue colour but which becomes yellow on exposure to air, owing to the presence of iron; this formation exists at Tingewick, Maids Moreton, Akeley, Thornborough and Beachampton, also at Marsh Gibbon.

The Middle Oolite is principally represented by the Oxford Clay; it is a bluish clay which becomes yellow on exposure, and is very much in evidence throughout the District. Sand and gravel drifts on the clay are of frequent occurrence. On the whole the geological formation of the District cannot be considered a particularly favourable one for obtaining Good Water Supplies. The waters of the District are almost without exception, very hard, and much of the hardness is of a permanent character owing to the presence of sulphate of lime.

Rainfall.

The Rainfall for the past twelve months has been about 21 inches, which is nearly 6 inches less than the average of the last 25 years, and as the rainfall for 1898 was also deficient, it was no wonder that the springs were low and that in many of the villages there was a great scarcity of water during the Summer and Autumn months.

Population.

The District contains an estimated population of 8405 to the middle of the year 1899, being a decrease of 549 since the census of 1891, when the population was 8954. The time is now near at hand when the census of this country will again be taken, but for the more correct estimation of Vital Statistics it is much to be desired that the Government should arrange for a quinquennial census.

Birth-rate.

The number of births registered during the year was 187, being equal to an annual birth-rate of 22·2 per 1000 living, compared with 24·4 for 1898 and 29·26 for England and Wales (1899).

Death-rate.

The number of deaths registered during the year was 122, being equal to an annual death-rate of 14·5 per 1000 living. Two deaths were registered in the District of persons not belonging thereto and nine deaths occurred in the Buckingham Union Workhouse of persons belonging to the District, so that the corrected death-rate is 15·3 per 1000 living, compared with 10·1 for 1898, and 17·1 for Rural England and Wales (1899). While these figures are not so satisfactory as those of last year, they are not unfavourable, and I may again bring the fact to your notice as I did in my last year's report that with the comparatively small population of the Rural District of Buckingham a slight increase in the number of deaths has a much greater effect on the death-rate than when a large population is dealt with. In these cases of small populations the average of a number of years gives a truer test than the figures of a single year.

*Infantile
Mortality.*

The Infantile Mortality, that is the number of deaths of Infants under one year of age per 1000 births registered, was 144·4, compared with 70·9 for 1898, and 124 for Rural England and Wales (1899). The great increase in 1899 as compared with the preceding year has

*Infantile
Mortality.
(continued.)*

been caused through the number of children who were born prematurely, or with some congenital debility, 13 out of 27 being so described.

*Phthisis
Death-rate.*

Six deaths have been caused by Phthisis (consumption), but as one of these was that of a non-resident, the corrected Phthisis death-rate would be $\cdot 595$ per 1000 compared with $\cdot 315$ for 1898, and $1\cdot 38$ for England and Wales.

*Zymotic
Death-rate.*

The Zymotic death-rate is $\cdot 476$ per 1000, compared with $\cdot 315$ for 1898, and $2\cdot 21$ for England and Wales (1899).

*Zymotic
Disease.*

The deaths arising from Zymotic diseases were caused by Diphtheria 1, Puerperal Fever 1, and Diarrhœa 2.

Scarlet Fever.

Five cases of this disease have been notified during the past year without a death, compared with a total of eight cases notified during 1898. These five cases occurred in three different villages.

Diphtheria.

I am sorry to report that 16 cases of diphtheria have been notified during 1899 compared with one case during 1898; all the 16 cases occurred in the village of Maids Moreton and there is no reasonable doubt but that the disease was introduced by two children who came to the village on a visit from London. Several members of their family had been attacked by the disease and were removed to an Infectious Hospital, and it is probable that these two children themselves had suffered from diphtheria, though in a mild form. At any rate within a week of their arrival in the village a child living in the next house to them, and with whom they had been in contact, shewed symptoms of diphtheria and was treated for that disease; in a fortnight three other cases declared themselves in houses close to that occupied by the London children. No case of diphtheria had been notified in the District for over 18 months, and no case had occurred in Maids Moreton since 1890.

The Hospital tents were erected, Nurses provided, and the cases isolated, a total of 12 cases being treated in the tents, including two of the nurses who took the complaint from their patients. The last case was discharged from the tents on 14th October, but a month

Diphtheria
(continued)

afterwards a fresh case cropped up again close to the centre of the infection. The tents were immediately put up and one of the nurses recalled. This case was admitted on 13th November, another case on 1st December, and a third case on 12th December. At the time of writing this report no fresh cases have arisen at Maids Moreton, the last one having been discharged on 4th January, 1900. I have no doubt whatever that a much more serious outbreak of the disease was prevented owing to the prompt isolation of these cases in the tents. Fifteen cases were treated in the tents which, had they been treated at home in their cottages, would have formed fresh centres for the spread of the disease. Out of the total of 16 cases of diphtheria there was only one death, being a case mortality of 6.25 per cent. This low mortality was due to the early use of Antitoxin which was injected in every case. The true diphtheria (Klebs-Löffler) bacillus was bacteriologically proved to be present.

Enteric
(*Typhoid*)
Fever.

Only one case of Enteric (Typhoid) Fever was notified during the year, and it ended in recovery. The case did not originate in the District. Curiously enough only one case had been notified in each of the two preceding years (1897 and 1898) and both of these cases were also imported. This is satisfactory as showing that the water supplies of the District are (at any rate for the time being) free from the specific infection of this fever.

Measles.

No fatal case has been registered, the disease is not notifiable. The general public do not look upon Measles as a dangerous disease, but I must here point out that from the returns just issued for England and Wales for 1899, the mortality from measles was higher than that from Diphtheria and nearly three times as high as that caused by Scarlet Fever.

Whooping
Cough.

No fatal case.

Erysipelas.

Eight cases have been notified without a death compared with nine cases in 1898.

Membranous
Croup.

No case notified.

Small-pox.

No case notified.

Cancer.

Eight deaths were caused by cancer as against three in 1898. The question of the greater frequency

Cancer
(continued).

of deaths caused by Cancer of late years is now attracting the attention of Sanitarians. It is held by some authorities that a badly drained clayey soil predisposes to cancer, but this requires further investigation and proof, and an effort is now being made by the collection and tabulation of statistics to find some reason for the greater prevalence of cancer in some districts rather than in others.

Influenza.

Influenza has been prevalent during the opening and closing months of the past year, but no death has been registered as directly due to it.

Infectious
Diseases
Notification
Act.

Thirty cases in all have been notified under this act of which eight have been erysipelas. Nineteen cases were notified in 1898, and the increase is altogether due to the cases of diphtheria which caught the disease from two London children. The coming of holiday children from London into the country requires careful attention and watching, so that they may not bring with them the infection of diphtheria and other kindred diseases which are always more or less prevalent in the Metropolis. When they are sent down by Societies they certainly ought to bring with them a clean bill of health from the Medical Officer of Health of the District they reside in. I give here a table of the diseases notified in the District since the act was put into force in 1890:—

CASES NOTIFIED.

	Scarlet Fever.	Erysipelas.	Diphtheria.	Typhoid.	Membrane- ous Croup.	Typhus.	Small-pox.	Total.
1890	0	6	1	2	0	1	0	10
1891	23	3	2	2	1	1	0	32
1892	16	3	0	5	0	0	0	24
1893	28	6	6	3	0	0	12	55
1894	46	14	11	2	0	0	0	73
1895	17	12	54	9	0	0	0	92
1896	4	17	16	4	1	0	0	42
1897	13	16	6	1	0	0	0	36
1898	8	9	1	1	0	0	0	19
1899	5	8	16	1	0	0	0	30

Tuberculosis.

The presence of Tuberculosis in Dairy Stock and its consequent spread to man is still exercising the public mind a great deal. The Royal Agricultural Society of England issued a pamphlet early in the year on "Tuberculosis in Dairy Stock," in which suggestions are offered for the discovery, and prevention of the disease. I was able to distribute a copy of this pamphlet to each member of the Council, through the kindness of the Society, who supplied me with a number of copies. The fact that this matter is engaging the serious attention of the public will sooner or later lead to strict precautions being taken against the sale of milk from tuberculous cows, and much can be done by the farmer in weeding out infected animals from his herds. The great bar to his doing so is that no compensation is granted him for the loss he may sustain. At the same time I do not believe that the number of cows re-acting to the tuberculin test is at all as large in the country as some would have us suppose. In this district I only know of two herds having been submitted to the Tuberculin Test, and out of 49 animals only one was condemned as giving a decided re-action, in other words only one per cent. could be classed as tuberculous. Strangely enough the animal giving the re-action was the bull.

The London County Council are putting forward important proposals as regards the safeguarding of the milk supplied to London from the country, and they are urging Urban and Rural Authorities to put in force the powers they now possess under the Local Government Board Order of 1899. Of samples of milk taken in the Hackney district no less than 22 per cent. were found to contain Tubercle Bacilli, while in Liverpool 14·7 per cent. of samples of country milk were tuberculous, and only 6 per cent. of the samples supplied by cows kept in the town cowsheds. This result is rather difficult to reconcile with the fact that Liverpool has the unenviable notoriety of being one of the unhealthiest of the 33 large towns, its death-rate for the last quarter of 1899 being absolutely the highest and equal to an annual death-rate of 26·6 per 1000.

Tuberculosis
(continued).

The Technical Instruction Committee of the Cheshire County Council has been recently conducting a series of experiments on the use of Tuberculin in order to prove the presence or absence of Tuberculosis in Dairy Cows, and a few of the conclusions arrived at are as follows:—“(1) That tuberculin is a reliable and safe test for diagnosing the presence of tuberculosis in an animal. (2) That it does not afford any idea of the extent or degree of the disease. (3) That testing with Tuberculin has no deleterious effect upon the general health of the animal, and will not propagate tuberculosis in a healthy animal. (4) That manual manipulation only of the udder is not sufficient to decide whether the milk from an infected animal is tuberculous. (5) That an analysis of the milk of all re-acting cows should be made to ascertain whether they are specially dangerous as having tubercle bacilli therein, &c.” I would again ask your Council to have leaflets printed and distributed pointing out the danger of the disease in human beings, and giving simple directions regarding the means which may be used for its prevention. I take the following from an article in the “New Century Review,” by Sir E. H. Verney.—“There are some farmers who fear that tuberculin will injuriously affect their cattle and either give them some form of disease or predispose them to it. When the farmer realizes that the test simply enables him to pick out the tuberculous animals he ceases to object to its use and learns that it is decidedly for his advantage to have his present herds tested with a view to the protection of his herds of the future. If the disease in our herds is increasing as rapidly as seems to be true, it is clear that the longer the farmers wait before attempting the active campaign against tuberculosis the greater will be their difficulty in waging the battle, the greater will be the expense to which they will be subjected, and the greater will be the loss that must ultimately devolve upon them as well as on the public at large.”

Water
Supplies.

Four water certificates were applied for, three were granted and one was in abeyance at the end of the year, but has since been granted. I have visited and taken samples from 11 public supplies in the

*Water
Supplies
(continued)*

District and made extended analyses of them, copies of which have been submitted to your Council. The water supply for Poundon is now in the hands of the Contractor, and will be finished in a short time. The schemes for Twyford and Charndon have not yet been commenced, but the necessary Local Government Board inquiry has been applied for in each case. A second pump has been erected at Thornborough by the Parish Council, in which my suggestions have been carried out, and which will be a great improvement on the old dipping well. At Tingewick a pump has also been placed by the Parish Council over an old draw well, and I find on analysis that the quality of the water is satisfactory.

The pump in Duck Lake, Maids Moreton, has been deepened and entirely rebuilt, and the supply has been improved in quality and quantity. A new lead pump has been erected in a more convenient position about 30ft. distant from the well. Another well in the village has also been rebuilt and a new lead pump fitted instead of the old iron one. The new pump is a few feet away from the well and not directly over it, where the old one was placed. A third public pump in this village is also in the workmen's hands for improvement.

The well at Adstock near Dr. Phillip's has been rebuilt, the well cleaned out and the pump repaired. All the wells which have been rebuilt have been done with blue Staffordshire bricks, set in cement to a depth of eight or ten feet if the water level allowed or if not to the level of the water in the well.

Water Stratford well has been cleaned out.

The Anti-freezing standpipe at Barton Hartshorn has been repaired. At Padbury several of the taps which were out of order have been repaired. Leakages have been found in the main supply pipes at Steeple Claydon, and have been repaired. The main pipe has been extended towards the North End of the Village, and an anti-freezing standpipe has been erected there, also a similar standpipe has been placed near the Board Schools instead of the old screw tap.

Akeley pump and the tap in Chapel Lane have been repaired.

Sewerage

At Padbury, about 180 yards of new sewer has been laid with 9 in. socket pipes, from the Robin Hood Inn to the Railway; also in connection with this 33 yards of 6 in., and 22 yards of 4 in. socket pipes have been put down, with a four-inch ventilating shaft at the highest point.

At Adstock 73 yards of new 6 in. sewer has been put down across Mr. Jones' field, and 142 yards extension of sewer has been laid in 6 in. pipes, along the back lane, with a surface ventilator at the head of it.

At Tingewick the remainder of Church Lane (about 80 yards) has been laid with a 6 in. sewer.

At Maids Moreton 160 yards of 12 inch sewer have been taken up and relaid. Inspection Chambers, a Ferrozone Chamber, and a filtering tank have also been provided in connection with it.

At Twyford 120 yards of new 9 in. sewer have been put down across Mr. Wood's field to divert the sewer outfall.

At Steeple Claydon about 25 yards extension of sewer in Bull Lane have been laid so as to bring the sewer within the required distance (100 feet) of cottages which were to be connected with the sewer. The connections have all been carried out to my satisfaction. All Sewers have been constructed with glazed socket pipes and cemented joints. They have also been smoke tested. The County Council has trapped its surface water inlets at Maids Moreton, and your Council has similarly trapped nine inlets at Tingewick, seven at Shalstone, one at Steeple Claydon and one at Maids Moreton.

New drainage connections with sewers have been made for 69 houses in the district, all of glazed socket pipes, cemented joints and stone ware gully traps as inlets, paved round with blue bricks set in cement. Also 36 houses have had stone ware gully traps fitted at the drain inlets. A sewage tank with chain pump has been built at Middle Claydon.

Prosecutions

One case was brought into Court at Petty Sessions in which the owner of some cottages neglected to carry out the order of your Council. A conviction was obtained.

*Sewage
Treatment.*

The tanks and filters for treatment of sewage at Edgcott and Marsh Gibbon were completed later in the year, and no complaints have been made regarding their working.

*Urban
Powers*

Bye-laws have now been made by your Council and approved by the Local Government Board for carrying out the Urban Powers which you have obtained. They will be of the greatest benefit in securing the satisfactory sanitary construction of all new houses.

*Isolation
Hospital.*

During the latter part of the year the Isolation Hospital tents have been in use at Maids Moreton owing to an outbreak of diphtheria in that village. It was found necessary from the number of cases to buy a larger tent in addition to the one you already possess. This larger tent can accommodate eight cases, while the older tent can take in four. A larger stock of bedsteads and bedding was also bought, and a cooking stove was placed in a galvanized iron shelter; also a stove to burn coal was placed in the Hospital tent. Sixteen cases of diphtheria were treated in the tents with only one death.

Disinfection.

In this district there is still no disinfecting Chamber by which bulky articles of clothing and bedding can be efficiently disinfected by means of super-heated steam. Section 122 of the Public Health Act of 1875 says:—“Any Local Authority may provide a proper place, with all necessary apparatus and attendance, for the disinfection of bedding, clothing, or other articles which have become infected and may cause any articles brought for disinfection to be disinfected free of charge.” A place of this sort might be built in co-operation with the Buckingham Urban Sanitary Authority, and be used jointly with them. Disinfectants have been freely supplied to householders in the village of Maids Moreton. Five houses in the village have been disinfected in consequence of Scarlet Fever and 11 houses owing to diphtheria. The whole of the house drains and sewers were also flushed and disinfected.

In conclusion, I again beg to thank Mr. Varney, your Sanitary Inspector, for his help and co-operation, and I herewith append a detailed list of the work done by us during the past year.

I have the honour to remain,

Your obedient servant,

PHILIP L. BENSON, M.D., D.P.H., Camb.

SUMMARY OF NUISANCES ABATED DURING THE
YEAR 1898.

Number of Houses, Places, or Premises Inspected	..	..	595
Number of Notices on hand 31st December, 1898..	..	..	7
Number of Notices served	..	..	24
Complied with	..	..	29
Leaving on books, 31st December, 1899	..	..	2
Letters written relative to Nuisances	..	..	581
Houses repaired	..	..	15
,, Lime-washed and Cleansed	..	..	19
,, supplied with Disinfectants	..	..	36
Closets improved or converted to dry earth ones	..	..	7
Vault Closets cleaned out	..	..	8
Privies re-placed with Water Closets	..	..	8
Ashpits repaired	..	..	4
New Houses built	..	..	2
Drains laid to Houses	..	..	69
,, Repaired	..	..	15
,, Trapped	..	..	21
Sewage filtering tanks constructed	..	..	1
Ditches cleared out	..	..	24
Sewers ventilated	..	..	1
Water Inlets into Sewers trapped	..	..	17
Foul Pigwash removed	..	..	6
Manure, and other Refuse removed	..	..	35
Public Wells cleansed	..	..	6
Pumps fitted to Wells	..	..	2
,, repaired or altered..	..	..	11
Wells repaired	..	..	3
Additional new Closets	..	..	6
Chain Pump for Sewage	..	..	1
Blocked Drains cleared	..	..	7
Houses disinfected..	..	..	16
Public Water Supplies repaired..	..	..	12
New Public Water Supply by Standpipe	..	..	2
Public Water Supplies Analysed	..	..	11
Sewage Ponds cleaned out	..	..	5
Persons summoned before the Magistrates	..	..	1
Sewers repaired	..	..	3
Sewers partly taken up and relaid	..	..	3
New extension of Sewers..	..	..	4
			381

(A) TABLE OF DEATHS during the year 1899, in the Buckingham Rural District, classified according to Diseases, Ages, and Localities.

[illegible]

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

[illegible]

(B) TABLE OF POPULATION, BIRTHS, and of NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1899, in the Buckingham Rural District; classified according to Diseases, Ages, and Localities.

NAMES OF LOCALITIES.	POPULATION AT ALL AGES		Registered Births.	Aged under 5 or over 5.	New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health.									Number of such Cases removed from their Homes in the several Localities for Treatment in Isolation Hospital.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Last Census.	Estimated to middle of 1898.			Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Typhus.	Enteric or Typhoid.	Continued	Relapsing	Puerperal.	Cholera.	Erysipelas.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Notification of Infectious Disease has been compulsory in the District since January 1st, 1890. Movable Hospital Tents are used for Isolation, and have been so used this year for Diphtheria outbreak at Maids Moreton.

**Area and Population of the District or Division
to which this Return relates.**

Area in Acres, 52,557.

Population (Last Census), 8,954.

Population (estimated to middle of 1899), 8,405.

DEATH RATES—

General, 14·5 per 1000 Population, estimated to
middle of 1899.

Infant (under one year of age), 144·4 per 1000 Births
Registered.

1899.

Annual Reports

AND

VITAL STATISTICS.

The Rural District of

BUCKLOW,

AND

The Urban Districts of

**KNUTSFORD, MIDDLEWICH, WINSFORD,
AND BIDDULPH.**

PREPARED BY

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M.R.C.S., L.S.A., D.P.H.,

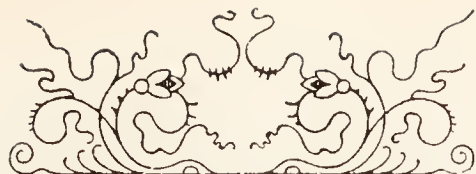
*Fellow of the Incorporated Society of Medical Officers of
Health; Fellow of the Royal Institute of Public Health;
Member of the Sanitary Institute; &c., &c.*

The Medical Officer of Health of the Districts.

**In accordance with Instructions from the Local
Government Board.**

Congleton:

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February 7.—Middlewich Urban District	101



VITAL STATISTICS FOR 1899.

	Birth Rate.	Death Rate.	Zymotic Rate.	Infant Mortality.
33 Largest Towns ...	—	20·2	2·8	181
67 Other Large Towns	—	18·0	2·4	178
England and Wales ...	29·3	18·3	2·2	168
England and Wales ... (Less the 100 Towns).	—	17·1	1·7	124
Bucklow Rural ...	22·9	14·3	0·8	129
Biddulph Urban ...	36·1	18·9	3·1	138
Knutsford Urban ...	21·0	17·3	0·6	136
Winsford Urban ...	31·4	15·1	1·6	123
Middlewich Urban ...	34·6	17·2	2·1	168



— ✧ — INTRODUCTORY. — ✧ —

IN preparing my Fifth Annual Report for the Bucklow, Knutsford, and Biddulph Districts, and Fourth for the Winsford and Middlewich Districts, I ask permission to draw the attention of all members of my Councils, and also of all other persons who may honour me by reading this volume, to the unsatisfactory position of the Medical Officer of Health in the following respect. He is appointed, and he is paid, by the District Council; but his duties are prescribed by the Local Government Board. Article 18 of the Board's Order of March, 1891, gives these duties in considerable detail, under no less than 18 sub-divisions; of which No. 14 prescribes the matter to be included in the Annual Report. Did space permit, I would like to reproduce Article 18 in full, together with the Annual Circular which accompanies it, and which is sent every December to the *Clerk* of each District Council. Presumably therefore the Board means it to be a reminder to the *Council* that the Medical Officer of Health is expected to do certain things, whether the District Council is pleased or not. To condense the essence of this Circular and Article into one sentence, the Medical Officer of Health is required to draw attention to all sanitary short-comings in the District, and to repeat this year after year. Inferentially therefore he must criticise the action, or want of action, of the Council. If he does this honestly, he may give mortal offence to members of the Council, and may be deprived of his Office; as has actually happened in many instances, including my own case in the Northwich Rural District at the end of 1898; and

the Local Government Board is powerless to protect him. This is such a monstrous injustice that language would fail me if I tried to describe it as it deserves. I have nothing to be ashamed of, in the record of the performance of my duties to any of my Councils; and I have taken every opportunity during 1899 to give publicity to the above views and facts, including the presentation of a somewhat lengthy paper at the meeting of the Incorporated Society of Medical Officers of Health held in London on October 13th. I append an article which appeared in the *Lancet* of December 23rd, as the subject is likely to come into prominence in the near future, and is well worth present consideration by all members of District Councils, and by the general public. As this is not, strictly, part of my Report upon any District, the cost of printing this paragraph will be borne by myself. Of course I am not in any way responsible for the *Lancet's* opinions or language; but the article is worth perusal.

FIXITY OF TENURE FOR MEDICAL OFFICERS OF HEALTH.

“A matter at present receiving considerable attention from Medical Officers of Health and deserving even more attention from the general public is the question of fixity of tenure and superannuation for the above-named officials. Superannuation, not only for Health Officers, but for all officials engaged at a fixed salary in positions of trust, is desirable; fixity of tenure—by which is meant “undisturbed possession of office and emoluments, subject only to dismissal for approved reasons by the Local Government Board”—is for Medical Officers of Health more than desirable, it is absolutely essential for the effectual fulfilment of their duties towards the best interests of the public. A casual observer is apt to consider this question of fixity of tenure as a matter affecting principally Medical Officers of Health themselves. Such, however, is emphatically not the case; on the contrary, the greatest sufferers by the existing state of affairs, and those who have most to gain by reform, are the members of the general public; it is only incidentally that Medical Officers benefit by the reform. For nearly 30 years, ever since, in fact, appointments of Medical Officers of Health have been made, the people have been robbed of the full benefit of the Public Health Acts by the sole circumstance that Medical Officers are liable to curtailment of salary or capricious dismissal by the members of their sanitary authority.

A moment's consideration will convince anyone that this must continue to be the case until fixity of tenure is granted. Take, for example, the composition of the ordinary sanitary authority—whether of a city, county borough, urban or rural district council—in every case its members are drawn from those who have the largest vested interests in the district or town as the case may be, they are possibly the greatest owners of property, the largest house agents, or the chiefs of the principal industries of the place. Sanitary reform unfortunately entails a certain amount of expenditure and will directly or indirectly affect to some extent the pockets of these men, the result of which is obvious. It is not an uncommon thing for a Medical Officer whilst endeavouring to have some insanitary property put in a proper state of repair to find that a quantity of it is owned by a member of the sanitary authority—*i.e.*, by one of his masters, by one of the men who have absolute power to discharge him neck and crop without giving rhyme or reason for their action. Or suppose the Medical Officer is taking active steps to provide an abattoir, he is at once at variance with the vested interests of the meat trade on the council; or suppose he agitates against the erection of insanitary dwellings, he finds himself forthwith at loggerheads with the jerry-builder and his

financiers, a class usually strongly represented on sanitary authorities. He points out defects in the water-supply and finds half his council suddenly cool to him, due, as soon dawns upon him, to the fact that half the members of the sanitary authority are shareholders in the local water company; and so on. Examples might be multiplied *ad nauseam*. Such occasions constantly occur in the experience of every Medical Officer of Health, and there are then two courses open: the Medical Officer may either allow the matter in hand to be referred to committee and quietly shelved or he may make a firm stand for what he considers to be his duty to the community. Adopting the first course the health of the community suffers and the Medical Officer is restored to favour and possibly gratified by hearing flattering allusions to his tact and good sense; adopting the second the health of the community may still possibly be ignored, but one thing is very certain—the Medical Officer will, if the matter affects large interests, assuredly suffer. It reflects credit on Medical Officers of Health as a class that so many prefer to suffer annoyance and risk loss of appointment rather than allow their sense of duty to be guided by expediency. That loss of appointment for mere performance of duty is no vague and remote risk is shown by the list of cases quoted by Dr. T. W. H. Garstang in his address delivered at the Annual Meeting of the Incorporated Society of Medical Officers of Health in October; from these cases we select those of three Medical Officers who were dismissed for advocating a new water-supply; of seven who were dismissed for advocating various sanitary reforms; of two dismissed for urging the provision of an isolation hospital; and lastly, of one Medical Officer of Health dismissed, after several years' service, for interfering with the concealment of a case of small-pox in the house of the chairman of his authority!

Now Medical Officers of Health are drawn from the same ranks as are other professional men; as a class they are not actuated by higher or by lower motives than others, and are not less prone or more prone than others to sacrifice themselves for conscience sake. What, then, must be the effect on the improvement of sanitation in the country from placing the chief of the sanitary administration in every district in such a situation that his duty puts him frequently face to face with two alternatives—one, performance of duty and loss of appointment, possibly starvation for himself and family, dismissed with the added stigma of having proved an incompetent officer; the other, neglect of duty and the knowledge that thereby his path will be in pleasant places, he will be on good terms with his councillors, and will find applications for increase of salary very favourably received? Is it, then, a matter for surprise that the benefits anticipated from the passing of the Public Health Acts have not been realised? Is it not, on the contrary, astonishing that any good at all should have been accomplished and that so many men have been found who have preferred to face loss of appointment rather than to allow their sense of duty to wait upon their personal enrichment?

These above-mentioned alternatives are not exaggerated. Every Medical Officer of Health throughout the country has continually found that his popularity with the members of his sanitary authority has been increased or decreased according as his activity in sanitary reform has been slight or marked. A rural Medical Officer of Health, a man of marked ability and a diplomate of public health, remarked recently, "Well, up to three years ago I took a great interest in public health, gave a lot of time to it and really worked hard to effect some much-needed sanitary reforms in my district—result, every year it was touch-and-go whether I were re-elected or not, consequently I decided to let the thing slide and now there is not a more popular official than myself; in fact, at the end of the year I shall almost certainly obtain a considerable increase of salary." Here, then, is an example of considerable abilities, the result of a number of years of experience and practice, absolutely lost to the people for the sole reason that to exercise them would assuredly cost the Medical Officer his appointment. He would be a stern moralist who would attach much blame to this Medical Officer for the course he had the honesty to confess that he pursued, and there are doubtless hundreds of Medical Officers throughout the kingdom who, though they may not give expression to their sentiments in the same words, are yet, consciously or unconsciously, coerced into adopting the same plan of campaign,

That the Medical Officer of Health is without security of tenure is, we hold, inimical to the well-being of the community: it retards sanitary progress, prevents the due administration of the Public Health Acts, and, lastly, places Medical Officers of Health in unfair, ambiguous, and in what in many cases have proved untenable positions. Unless Medical Officers of Health are independent of local authorities they are subject to unfair conditions to which no man should be exposed; they hold positions in which neglect rather than performance of duty leads to advancement and comfort.

We shall be sorry if anything in this article is taken as reflecting on Medical Officers of Health. The very opposite is intended, and we yield to no other journal a greater interest in, or appreciation of, the excellent work that has, in spite of conflicting circumstances, been effected by Medical Officers of Health in this country; at the same time we feel that the time has now arrived when plain language should be used in laying bare the defects in the system of their appointment. The public ought no longer to be defrauded of the benefits of the Public Health Acts, nor should such an important branch of our profession as that of the Medical Officer of Health be left in so unsatisfactory a state as it is at present.

We trust, therefore, that Medical Officers of Health will not, now the subject has been revived, allow it to drop until they have succeeded in obtaining the much-needed reform of security of tenure. At the same time, we are of opinion that if they will take up first the question of security of tenure and treat that of superannuation as secondary they will have a far stronger case to go upon and one far more likely to attract the attention and sympathy of the general public."

PHTHISIS AND TUBERCULOSIS.

A systematic attempt to trace back a connection between cases of phthisis or tuberculosis and the consumption of milk was fully described in my last Report. It has not been continued during 1899, as the results did not appear to warrant the trouble they necessitated. The figures then given may however be still useful in illustrating, in conjunction with the figures for 1899, the incidence of these diseases in my Districts. During the three years, 1897-8-9, the following deaths have been registered:—

	Phthisis.	General Tuberculosis.	Tubercular Meningitis.	Tubercular Peritonitis.	Tubercle of Mesentery.	Marasmus and Tabes Mesenterica.	TOTAL.	Rate.
Bucklow Rural ...	47	3	6	1	—	11	68	1·0
Biddulph Urban ...	20	—	—	1	—	3	24	1·4
Knutsford Urban ...	11	—	2	—	—	2	15	1·0
Middlewich Urban...	9	1	2	—	6	1	19	1·4
Winsford Urban ...	30	7	2	—	1	5	45	1·4
	117	11	12	2	7	22	171	1·17

The Rates are for the Totals. If any of the columns be excluded, as not strictly either "phthisis" or "tuberculosis," the Rates would be improved thereby. Thus the Rate for the "phthisis" column alone would be only 0·8, (Bucklow 0·7, Knutsford 0·7, Middlewich 0·7, Winsford 0·9, Biddulph 1·1.)

In all the cases called "phthisis" or "tuberculosis" disinfection of the sick room after death has been offered. In many instances it has been accepted, but in a certain proportion it has been deliberately refused, forcibly illustrating again that curious characteristic of the British citizen (of whatever rank) which leads him to consider that his own opinion upon an obscure medical point is more valuable than the consensus of opinion of the experts in the profession who have been specially working at it.

MEANS OF DISINFECTION.

Chlorinated lime solution has been used, in accordance with the advice of the County Medical Officer of Health, in some instances, for the purpose of disinfection. In two cases this resulted in claims for damages, owing to its powerful bleaching action. The workman who had used it had ignorantly scattered or sprinkled it about the room, instead of restricting its use to the floor, walls, and ceiling. Dress materials, wooden furniture, fire-irons, and a piece of marble, all shewed marks which could not be eradicated. As there is no steam Disinfector available in any of my Districts for the treatment of bedding, clothing, &c., rooms have to be disinfected whilst containing all their furniture, bedding, &c. This makes it hopeless and impossible to perform the disinfection with scientific completeness; yet strange to say I have no evidence of increase of disease which could be attributed to failure of disinfection. One case only occurred after disinfection had been carried out, and this was during a sharp epidemic when it was more likely that the child was affected out of doors than in the house. The Bucklow and Winsford Districts have Equifex Sprayers for use with solution of corrosive sublimate; the other Districts still rely mainly on sulphur, and some patent articles such as Izal, &c.

NOTIFIABLE INFECTIOUS DISEASES.

The year 1899 will be marked in my memory as the "scarlet fever year" in Bucklow, Biddulph, and Knutsford, and as the "erysipelas" year in Middlewich and Winsford. The total Notifications are 439, which destroys the continuity of the improvement upon which I have been so pleased to congratulate my Districts in my two previous Annual Reports.

		Number of Notifications received in									
		1890	1891	1892	1893	1894	1895	1896	1897	1898	1899
Bucklow Rural	...	39	46	107	240	182	79	65	59	46	106
Northwich Rural	...	43	42	168	257	192	129	270	162	95	83
Biddulph Urban	...	20	22	24	15	39	25	55	17	7	118
Knutsford Urban	...	—	—	—	—	—	25	12	5	6	70
Middlewich Urban	...	0	9	1	123	24	53	67	31	18	23
Winsford Urban	...	42	40	43	267	31	47	197	47	22	39
		144	159	343	902	468	358	666	321	194	439

It may perhaps be worth while on the present occasion to give a Table of the whole of the Returns for the ten years during which Notification has been compulsory. (I am indebted to the courtesy of Dr. Gough for the figures for Northwich Rural for 1899.) During 1890 and 1891 it is evident that the Act was only gradually coming into operation; the Middlewich figures are obviously untrustworthy before 1893; and the whole of the Districts up to 1896 or 1897 are more or less below their proper level owing to the custom of many medical men, in those days, of sending in only one Notification per house.

The figures for 1899 are not intrinsically bad; it is only by comparison with the abnormally good year 1898 that they appear unsatisfactory; and on p. 36 of my last Annual Report will be found a warning not to expect that extraordinary freedom from infectious disease to be maintained; concluding with the following prophetic words: “an epidemic of scarlet fever, for instance, might spoil the figures of another year in “a very short space of time.”

It is also worth while to submit the figures for 1899 to further analysis.

	Estimated Population, 1899.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Puerperal Fever.	Erysipelas.	TOTAL.	Case rate per 1000
Bucklow Rural	23359	83	6	7	2	8	106	4.5
Biddulph Urban	5820	110	—	5	—	3	118	22.7
Knutsford Urban	4900	62	1	2	1	4	70	14.3
Middlewich Urban	4650	2	—	1	—	20	23	4.9
Winsford Urban	10850	18	2	1	1	17	39	3.6
	49579	275	9	16	4	52	356	7.2

The occurrence of only 4 cases of puerperal fever in a population where there have been 1343 births is (though not up to 1898) very satisfactory. The cases of diphtheria and enteric fever are marvellously few; erysipelas (though prevalent in two Districts) has been rarely of any importance; and so we are left with the scarlet fever only to account for the figures of the year. Eight deaths have occurred among the 275 cases, or 2·9 per cent; equal to a death-rate of 0·16 per 1000 of population.

ZYMOTIC DEATHS.

The Registrar General's "Seven principal Zymotic diseases" are an entirely distinct list from the foregoing. Six of them have appeared in the lists of deaths in my Districts.

1899.	Deaths Registered from							
	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhoea.	TOTAL.	Rate.
Bucklow Rural ...	3	1	3	—	7	16	30	0·8
Biddulph Urban ...	4	—	1	—	5	9	19	3·1
Knutsford Urban ...	—	—	—	—	2	1	3	0·6
Middlewich Urban...	—	—	—	—	—	10	10	2·1
Winsford Urban ...	1	—	—	7	3	6	17	1·6
	8	1	4	7	17	45	79	1·7

This Table brings out, at a glance, the usual evidence that the mortality from diarrhoea is far heavier than that from any other disease; that the group of the other non-notifiable diseases (measles and whooping-cough) is accountable for more deaths than all the notifiable diseases (small-pox, scarlet fever, diphtheria, and enteric fever); and if we compare it with the previous phthisis table we also find that tuberculous diseases alone have a Rate which is just two-thirds of that of the whole class of Zymotic diseases.

SCHOOL CLOSURE.

This step has been resorted to on several occasions; under such varying circumstances that I find it difficult to compile a

list. Thus the Wharton Schools (Winsford) having been ordered to be closed, on account of measles, on December 11th, the order was suspended by a voluntary undertaking to close for the holidays on the 14th instead of the 21st. In the cases of Timperley St. Andrew's Infant, and Mobberley (Bucklow) in August, and Ashley (Bucklow) in October, orders were made for the exclusion of all children from infected houses, the former on account of whooping cough, the latter on account of measles. In May Schools were closed, for measles, at Bollington and Arley (Bucklow.) On account of scarlet fever Schools were closed at Ashley in July, at Shadow Moss in Northen Etchells, in October, and at Lower Tabley, Little Heath in Dunham Massey, and Arley in December, (all Bucklow). In Knutsford the St. Cross Schools were closed on account of scarlet fever in June; and at Winsford the St. John's Schools, Over, were closed in July on account of measles, also the Infant department of the Board Schools, whilst the Senior department of the Board Schools closed for the holidays earlier than it would otherwise have done, without formal order. The St. John's Schools, Over, were also closed in December on account of scarlet fever. At Biddulph the whole of the Schools in the District were closed simultaneously on November 16th on account of a widespread epidemic of scarlet fever. In all the cases, the orders were only made after the full and careful consideration of the merits of each case as required by the Local Government Board's elaborate Memorandum dated July, 1897. One case occurred in which an Authority persisted in issuing a closing order, although I advised distinctly that there was not the slightest necessity for it. If the Local Government Board permits this action to pass, it seems to me that the whole of the aforesaid Memorandum is little better than waste paper.

In every instance (except the one last referred to) the action taken appeared to be fully justified by results. Most particularly was this the case in the Biddulph District.

GENERAL ARRANGEMENT.

I propose, for the future, to adopt the order of subjects treated which is used by the County Medical Officer of Health. This will be an obvious convenience.

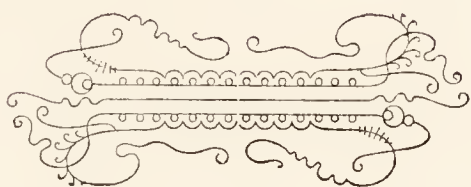
CONCLUSION.

I once more thank the Chairmen and Members of all my Councils for the "free hand" which they have given me in the joint schemes I have carried out with regard to the printing of the Annual Report, and the attendance at the Annual Meeting

of the Sanitary Institute. I can assure them that each year, as it passes, whilst it adds to my knowledge and experience of the duties of my Office, also finds me additional openings for work; and 1899 has been by far the busiest year that I have ever spent. The work is thoroughly congenial, and I do not grumble. On the contrary, I desire to acknowledge with deep and sincere gratitude the many kindnesses which I have received, often unexpectedly, from the members, and also from my fellow-officers, of the five Councils which it has been my pride and delight to serve during the year just past.

T. W. H. GARSTANG.

January 8th, 1900.



Bucklow Rural District.

ANNUAL REPORT OF MEDICAL OFFICER OF HEALTH FOR 1899.

Population at Census, 1891, 20,382.

Estimated Population in middle of 1899, 23,359.

Area in Acres 58,925.

Birth Rate per 1,000 living, 22·9.

Death Rate per 1,000 living, 14·3.

Death Rate from Seven Principal Zymotic Diseases, 0·8.

Deaths under one year in proportion to 1,000 Births, ~~131~~ 129.

Note.—The matters dealt with on pages 5 to 13 are to be read as a part of this Report.

Area.—The Area of the District has not changed since 1895, in which year two new Urban Districts were created; but another new Urban District is to come into existence during 1900, so that this is the last Report upon the existing Area.

Population.—Additions have been made to the estimate, based upon the number of new houses erected, in the Semi-Urban Townships; the purely Rural Townships have been left at the figures of the previous year. I do not anticipate any great error being disclosed by the next Census.

Births.—The Births registered are 535 as compared with 541 in 1898. The Rate is 22·9 which is lower than 1898 by 0·9. The Rates for the previous 10 years, 1889–98, are as follows :—27·6, 26·4, 27·0, 25·4, 26·1, 24·9, 21·4, 22·8, 23·5, 22·7, 23·1, 23·8; and the average of these is exactly 24·0. It is thus apparent that the birth-rate in the Bucklow District is a steadily diminishing quantity, though doubtless this tendency has been

accentuated, by the successive removal of some of the most populous Townships to form independent Districts. This year (*see Supplementary Table III.*) the Altrincham Sub-district is the highest and Lymm lowest; the difference between them being 3·2, and the other two Sub-districts lying practically mid-way between them.

Deaths.—The Deaths registered are 333, as compared with 267 in 1898; and the Rate is 14·3, which is no less than 2·5 higher than 1898. The Rates for the previous 10 years, 1889–98 are as follows:—15·3, 14·8, 15·0, 15·2, 15·1, 13·2, 15·0, 13·6, 13·5, 11·8; and the average of these is 14·1. It is thus apparent that the death-rate is also a steadily diminishing quantity, the year 1898 (as was noted at the time in my last Annual Report) being the most favourable that had ever been recorded. The Rate for 1899 is almost exactly the same as the 10-year average. I anticipate that a rise in the death-rate will be found to have been pretty general throughout the kingdom; and I believe that the rise here recorded for the Bucklow District, is merely part of a generally prevailing condition, and does not in any way mark a deterioration in the Public Health of the District. Those interested in examining the returns in greater detail are referred to the Supplementary Tables III. and IV., where they will find that, read horizontally, these Tables give the Quarterly and Annual Totals and Rates for each Registration Sub-district, and for the whole Rural District. Read vertically, the Totals and Rates for each Quarter and for the whole year are compared together. The labour involved in preparing these apparently simple Tables is enormous. I continue to give them because my predecessor gave them; and the detailed information they contain cannot but be valuable to the future writer; and it would probably be found impossible to construct the Tables hereafter if omitted now.

Comparative Position.—(Supplementary Table V.)—The Annual Report of the County Medical Officer of Health enables us to see ourselves in comparison with the other 29 Rural Districts or Sub-districts in Cheshire. For 1898 the Altrincham, Lymm, and Knutsford Sub-districts had the lowest death-rates in the County, except only the Runcorn Sub-district of the Runcorn Rural District; and the Lymm, Knutsford, and Wilmslow Sub-districts were among the best in the list of Zymotic death-rates, the first-named being second only to the Rainow and Sutton Sub-districts of the Macclesfield Rural District, which had no deaths at all from Zymotic diseases. The comparative position for 1899 is at present only matter for conjecture, but it may be again remarked that our figures for 1898 were quite exceptional, and we must not expect each succeeding year to reach quite so high a standard.

Infant Mortality.— 69 Deaths of children under 1 year, where the births amount to 535, is in the proportion of ~~131~~ to 1000. This is not nearly so good as last year, when the figure was 100. The figures for the previous 10 years, 1889–98, are as follows :— 120, 113, 114, 113, 138, 119, 133, 100, 120, 100; and the average of these is 117. The increase above the average, shewn by the number for 1899, is more in proportion than the increase in the general death-rate, which has already been considered. The deaths are classified as follows :—

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SUB-DISTRICT.	Prematurity, Debility, and Malformation.	Convulsions.	Zymotic Diseases.	Bronchitis and Pneumonia.	Miscellaneous.	Total.
Altrincham ...	2	10	6	8	7	33
Lymm ...	3	3	1	1	0	8
Knutsford ...	4	4	4	1	0	13
Wilmslow ...	3	2	3	5	2	15
Total ...	12	19	14	15	9	69

I beg to repeat the following extract from my last Annual Report, respectfully drawing attention to the fact that no member of the Council has hitherto moved in the matter.

“Some of these deaths certainly were preventable, probably (at a reasonable estimate) one-half of them. Education in the elementary hygiene of child-rearing is the only means by which improvement can be expected. I suggest that a leaflet be drawn up and printed, and given to the Registrars, to be issued to parents when registering births. This would not be an expensive matter; and would probably be of considerable service. The plan is I believe followed at Crewe.”

Illegitimate Infants.—The number born during 1899 was as follows :—Altrincham, 8; Lymm, 4; Knutsford, 3; Wilmslow, 4; total 19. This gives the following percentages of births :—Altrincham, 3·0; Lymm, 5·7; Knutsford, 3·7; Wilmslow, 3·4; and for the whole District, 3·7.

The deaths of illegitimate children under 1 year of age were as follows :—Altrincham, 0; Lymm, 3; Knutsford, 0; Wilmslow, 1; total 4. In tabular form therefore ;

Sub-District.	Legitimate.		Illegitimate.		Percentage of Deaths under 1 Year to Births.	
	Births.	Deaths under 1 Year.	Births.	Deaths under 1 Year.	Legitimate.	Illegitimate.
Altrincham.	261	33	8	0	12·6	0·0
Lymm	65	5	4	3	7·7	75·0
Knutsford ...	78	13	3	0	16·7	0·0
Wilmslow	112	14	4	1	12·5	25·0
Total ...	516	65	19	4	12·6	21·0

Still-born Children.—No information available. I entirely agree with the views of the County Medical Officer, who considers that “for the better protection of infant life it is “desirable that every birth, still or quick, should be subject to “compulsory registration.”

Mortality among Old People.—(*See Supplementary Table II.*) 29 per cent. is just the average for the Rural Districts in the County in 1898.

Uncertified Deaths.—These numbered 5 only, (3 in the Altrincham and 2 in the Knutsford Sub-districts), a percentage of 1·5.

Coroners' Inquests.—These may be best given in tabular form. They numbered 12 in the Altrincham, 1 in the Lymm, 8 in the Knutsford, and 9 in the Wilmslow, Sub-districts. Of these, 3 in the Altrincham, 3 in the Knutsford, and 3 in the Wilmslow, Sub-districts, did not belong to the Rural District at all.

DATE	SEX	AGE	WHERE HELD	WHERE BELONGED TO	VERDICT
STRANGERS.					
Apr. 2	M	55	Baguley	Sale	Died in the road from heart disease.
June 20	M	3 wks.	Dunham Massey (found in canal)	Unknown	Fracture of skull. Wilful murder by some person unknown.
June 25	M	32	Dunham Massey (canal)	Altrincham	Drowned whilst bathing.
May 9	M	32	Rostherne (Mere)	Manchester	Suicide by drowning whilst temporarily insane.

DATE	SEX	AGE	WHERE HELD	WHERE BELONGED TO	VERDICT
June 10	M	19	Pickmere (Mere)	West Didsbury	Accidentally drowned.
July 16	M	18	Pickmere (Mere)	Manchester	Found drowned.
Jan. 17	F	25	Northern Etchells (pit)	Manchester	Suicide by drowning whilst of unsound mind.
Mar. 3	M	43	Northern Etchells	Stockport Etchells	Natural causes, probably epilepsy.
Dec. 9	F	45	Northenden (river)	Unknown	Found drowned.
RESIDENTS.					
Jan. 20	M	77	Hale	Hale	Found dead ; suffocated ; after fall downstairs.
Feb. 4	F	48	Timperley	Timperley	Syncope.
Apr. 6	F	5 mos.	Hale	Hale	Convulsions.
Aug. 6	F	61	Timperley	Timperley	Syncope.
Aug. 17	M	20	Dunham Massey	Dunham Massey	Suicide by taking nitric acid whilst temporar- ily insane.
Sep. 21	F	64	Dunham Massey	Dunham Massey	Apoplexy.
Nov. 1	M	58	Hale	Hale	Fracture of spine from fall downstairs.
Nov. 19	F	1¾	Dunham Massey	Dunham Massey	Accidentally drowned by falling into a water-trough.
Dec. 24	F	5 wks.	Hale	Hale	Found dead in bed ; convulsions.
July 28	M	17	Aston-by-Budworth	Aston-by-Budworth	Suicide by hanging whilst temporarily in- sane.
Feb. 15	M	45	Ollerton	Ollerton	Found dead in a ditch ; apoplexy.
May 12	M	75	Hale	Rostherne	Run over by railway engine.
June 27	M	42	Marthall	Marthall	Suicide by drowning whilst temporarily in- sane.
Nov. 11	M	33	Bexton	Plumbley	Killed by train whilst walking on the line.
Jan. 8	M	50	Northern Etchells	Northern Etchells	Natural causes, probably ague.
Feb. 1	F	41	Northenden	Northenden	Apoplexy after excessive drinking.
Apr. 10	M	50	Mobberley	Mobberley	Cerebral hæmorrhage, thrown out of trap.
Apr. 26	M	69	Northenden	Northenden	Natural causes.
Nov. 3	F	66	Northenden	Northenden	Injury to head from fall- ing downstairs whilst drunk.
Nov. 16	M	63	Mobberley	Mobberley	Found dead in a ditch from cold & exposure.

Notifications of Infectious Disease.

Year.	Small-pox.	Scarlatina.	Diphtheria.	Enteric Fever.	Puerperal Fever.	Cholera.	Erysipelas.	TOTAL.
1890	—	26	5	5	1	—	2	39
1891	—	28	5	7	—	—	8	48
1892	—	68	8	18	2	—	11	107
1893	—	193	18	14	1	—	14	240
1894	1	116	40	7	2	—	16	182
1895	2	39	19	11	3	—	5	79
1896	—	31	9	19	1	—	5	65
1897	—	42	3	8	—	—	6	59
1898	—	19	11	6	—	1	9	46
1899	—	83	6	7	2	—	8	106
Total for 10 Years	3	645	124	102	12	1	84	971
Average	·3	64·5	12·4	10·2	1·2	·1	8·4	97·1

From the above Table it appears that the year 1899 has had a larger number of the Notifiable Infectious Diseases than any previous year except 1892, 1893, and 1894. It will, however, be observed, that in the 4 years named, the increase has been almost entirely due to scarlatina; and that, with this exception, the numbers for 1899 are below the average for the 10 years which have now elapsed since the Notification Act came into force. Epidemics of scarlatina we must have from time to time, as the number of susceptible children increases. As the disease has become much milder in type in late years, it is being treated by many members of the general public with the same indifference that they have long shown towards measles and whooping-cough, and this undoubtedly is a potent factor in aiding the spread of an epidemic.

As each disease will be considered separately, it is unnecessary to say more here. The past year has been, on the whole, an eminently satisfactory one in this respect.

Zymotic Diseases.—In the previous paragraph we have considered the diseases scheduled in the Notification Act. We turn now to a different list, viz., that of the Registrar General. His list includes small-pox, measles, scarlatina, diphtheria, whooping-cough, fever, and diarrhoea. As three of these are not Notifiable, we have no means of ascertaining or recording the number of cases that occur. The only figures which we can compare are those which enumerate the deaths registered from these diseases.

Year.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping-cough.	Fever.	Diarrhoea.	TOTAL.
1890	—	5	1	—	3	3	8	20
1891	—	1	1	1	5	4	6	18
1892	—	13	3	1	7	3	6	33
1893	2	3	6	6	1	7	18	43
1894	—	1	4	5	8	1	5	24
1895	1	—	2	5	3	4	2	17
1896	—	1	—	6	3	3	4	17
1897	—	16	1	2	1	3	15	38
1898	—	3	1	2	—	2	11	19
1899	—	—	3	1	7	3	16	30
Total for 10 Years	3	43	22	29	38	33	91	259
Average	·3	4·3	2·2	2·9	3·8	3·3	9·1	25·9

The death-rate from these diseases for 1899 is 0·8, compared with 0·8 in 1898, 1·6 in 1897, 0·8 in 1896, 0·8 in 1895, and 0·8 in 1894. The Rates for the earlier years of the decade cannot be given without entirely fresh calculations (for which, at the moment, there is no time) as I find that the Rates published for those years were (as frequently happened elsewhere) not based upon the classification of the Registrar General, which it is found convenient to accept to-day. The average of the above 5 years is 0·96; the average of the same years in the Kingdom generally was 2·11, showing an advantage of 55 per cent in favour of this District.

The usual precautions are taken in all known cases to prevent the spread of the disease, as detailed on page 15 of the County Medical Officer of Health's Annual Report for 1898, and also in my previous Annual Reports.

Small-pox. }
Typhus Fever. } Absent.
Cholera. }

Vaccination.—It is impossible to give the particulars for the Rural District, inasmuch as the Districts of the Vaccination Officers and their returns, comprise independent Urban Districts, as well as certain Rural Townships. I may, however, state my opinion, based upon my practice as Public Vaccinator in several of the largest Townships in the Union, that in the Rural Townships there are practically no children unaccounted for, and no children, living and resident, unvaccinated.

The Vaccination Act, 1898.—It is only by the coincidence above alluded to, that I have any knowledge of the practical working of this Act. Its weakest points, and those which most seriously inconvenience the Public Vaccinator, are (*a*) the necessity on receipt of Form H from the Vaccination Officer, of arranging several days (at least two, when notices are sent by post in the usual way) beforehand, the various journeys (sometimes long ones) required to cover the area of a District of average size and character; (*b*) the enormous amount of time occupied in writing the notices and certificates, and in keeping the register, etc.; (*c*) the absence of provision for payment in cases where the visit, from any cause, does not result in vaccination; I mean payment beyond the one shilling per head, for I find that this does not more than pay for the trouble of the case, without taking the actual journey into account at all; and finally (*d*) the most onerous of all, the compulsion to pay those visits on the precise day named, between the hours of nine and four, whatever may happen to be the state of the weather, the state of the roads, the condition of the Vaccinator's health, or the numerous other conflicting claims upon his time and attention, which are sure to have arisen within that period in the life of a busy general practitioner. I am personally very fortunate in this respect, that my Vaccination District is largely coincident with my Rural District, in which I have duties as Medical Officer of Health; and also it is entirely beyond the radius of my private medical practice. It is thus impossible for me to incur the suspicion of interfering with a neighbour's practice, by my visits as Vaccinator. Considering the complaints made in the medical press, from certain Districts, upon this point, and the entire absence of difficulty or friction in my own case, I desire to record my opinion distinctly, that it is a great advantage to a District to have a non-resident Public Vaccinator. The gross fees payable by Boards of Guardians under the new Order, are very largely in excess of those formerly paid; and many Boards, not recognising the *even greater increase in the work done*, are endeavouring to cut them down to the lowest point allowed by the Local Government Board. Whether that august Board will prove to have either the will or the power to protect Public Vaccinators from unjust "sweating," is a problem already pressing for solution.

Measles.—Not a single death registered during 1899. Several small epidemics were disclosed by applications for school-closure. Thus the Schools at Bollington and Arley were closed on May 17th; and Ashley on October 4th was required to exclude particular scholars.

Scarlatina.—The past year has seen a considerable increase

in the number of cases occurring; in fact, 1893 and 1894 are the only years which had a larger number of cases, (see Table on p. 20). All the Sub-districts have suffered equally. In the Altrincham Sub-district, there were 38 cases, of which 2 proved fatal. Five cases occurring in Ashley, in 3 houses, in June and July, were connected with an epidemic existing at the time in the Knutsford Urban District. The remainder, in almost every case, were traced to infection in the Altrincham Urban District. Five cases occurred in the Township of Baguley, 4 in one house in March, and 1 in September; 6 cases in Dunham Massey, 3 in November and 3 in December; 16 cases in Hale, 2 in January, 1 in February, 1 in April, 1 in June, 5 in October, 2 in November, and 4 in December; 6 cases in Timperley, 2 in May, 1 in November, and 3 in one house in December. Six of the Hale cases were removed to the Altrincham Infectious Hospital, and 1 to the Knutsford Hospital; 1 of the Dunham cases was removed to the Salford Hospital. In the Lymm Sub-district there were 13 cases, of which 7 occurred in High Legh; 1 in February, 2 (in the same house as the last) in March, 2 in September, and 2 in October; of these 1 was removed to the Knutsford Hospital. There was 1 case in Partington in February; 2 cases in Carrington in April; and 3 cases (in one house) in Millington, in November and December. In the Knutsford Sub-district there were 13 cases, of which 5 occurred (in one house) in November, and 1 in December, in Plumbley; 1 in Peover Inferior in June, in a travelling van; 1 in Tabley Superior in October, which proved fatal; 1 in the same Township in November, removed to the Knutsford Hospital, and 1 not removed; and 2 (in one house) in Tabley Inferior in December. In the Wilmslow Sub-district there were 19 cases, of which 1 occurred in Styal in September; and 2 in Mobberley in November (removed to the Knutsford Hospital); and 16 in Northen Etchells occurring in 4 houses, in October and November. The total number of fatal cases, therefore, was 3 out of 83 notified. The Northen Etchells cases were the only ones that threatened any troublesome extension, but even these were successfully circumscribed by the careful and thorough supervision exercised by the Inspector and his Assistant. In a year in which scarlatina has been unusually prevalent, this may be considered on the whole, a not unsatisfactory report. The Ashley School was closed during August, and Shadow Moss School, Northen Etchells, was closed towards the end of October, and Lower Tabley School was closed during portions of November and December.

Return Cases.—No cases occurred in houses from which patients had been removed to hospital; but there were several instances, as detailed above, where further cases occurred, on account of the first case *not* having been removed,

Diphtheria and Croup.—The District retains its fortunate immunity from this serious disease. One case occurred in Northenden in March, which proved fatal; 1 case was notified from Plumbley in November, which gave a negative result on bacteriological examination; 1 case was notified in Dunham Massey in May (removed thither for nursing from the Altrincham Urban District) and the 3 remaining cases were notified from High Legh in September. I have considerable doubt whether these 3 were true diphtheria at all; the only one which I succeeded in getting bacteriologically examined, gave a negative result twice over whilst the clinical history and rapid recovery of the others also pointed to a disease of less importance. At the time, however, every investigation was made, and every precaution taken, and a great deal of trouble was expended upon these cases. One of them was sent into the Union Workhouse at Knutsford, but the remainder were treated at home without any ill effect.

Whooping Cough.—Seven deaths were registered from this disease; 1 in Baguley in November (F., 2 years) 2 in Tabley Superior in July (F., 14 mos. and F., 3 years) 1 in Peover Superior in July (M., 2 mos.) 1 in Mere in August (F., 3 mos.) 1 in Northen Etchells in July (F., 1 mo.) and 1 in Mobberley in August (M., 9 mos.) There was a considerable epidemic in June and July in connection with Shadow Moss School, Northen Etchells, and in August, St. Andrew's Infant School, Timperley, and the Mobberley Schools also suffered, and orders were given for the exclusion of all scholars from infected houses. In 1898 there were no deaths from whooping-cough; in 1897, 1 death; in 1896, 3 deaths; and in 1895, 3 deaths; so that on the whole, the District has suffered very little for the last 5 years, having only recorded 14 deaths in all, of which exactly one half are in 1899.

Enteric Fever.—Seven cases were notified during the year; 1 case in July at Northenden (M., 24 years) which proved fatal; 1 case in Dunham Massey in July (F., 49 years) which was removed to a Nursing Home in Altrincham; 1 case in Pickmere in August (F., 13 years); 1 case in Baguley in September (M., 4 years); 1 case in Ashley in September (M., 43 years) which was removed to the Altrincham Hospital and there proved fatal; 1 case in Timperley in October (M., 43 years); and 1 case in Hale in November (F., 30 years) which proved fatal. Bacteriological diagnosis was employed in the 2nd case (positive result), in the 3rd case (negative result), in the 6th case, twice (first negative and afterwards positive), and in the 7th case (result doubtful). The deaths in 1898 were 2; in 1897 were 3; in 1896 were 3; and in 1895 were 4; so that during the past 5 years, there has been nothing in the shape of

an epidemic in the District, and only isolated cases have had to be dealt with, the infection not being always satisfactorily traced, but in several cases being found to lie outside the District. In every case rigorous inspection of the premises was made, and sanitary improvements effected where necessary. No one case gave rise to another. The fatality in 1899 was heavy, viz. : 3 deaths out of 7 cases.

Puerperal Fever.—Only 2 cases occurred, but both proved fatal. One was in Toft in July, the infection having been conveyed by a midwife, from a neighbouring case in the Knutsford Urban District. The other was at Ollerton in October. In 1898 there were no deaths; in 1897, no deaths; in 1896, 1 death; and in 1895, 3 deaths; so that the District has a good record in this respect also.

Diarrhœa.—16 deaths were registered. With the exception of 1 which occurred in January, they all occurred in the Autumn, viz. : 4 in August; 5 in September; 3 in October; and 3 in November. The localities were Hale, 3 cases; Timperley, 1 case; Dunham Massey, 3 cases; Aston, 1 case; Partington, 2 cases; Tabley Superior, 2 cases; Northenden, 3 cases; and Northen Etchells, 1 case. Three cases were at the respective ages of 75, 73, and 60 years; 1 was at 2 years; 1 at $1\frac{1}{2}$ years; the remainder below 1 year. In 1898 there were 11 deaths; in 1897, 14 deaths; in 1896, 4 deaths; and in 1895, 2 deaths.

Erysipelas.—Eight cases were notified during the year, which were of little importance, except 1 in March, at Mere, (M., 44 years), which proved fatal.

Influenza.—No less than 19 deaths were attributed to this disease. They included 9 M. and 10 F.; 3 were under 5 years of age; and 7 over 65 years of age. The Townships affected were as follows :—Timperley and Northenden, 3 each; Warburton, Tabley Superior, and Mobberley, 2 each; Hale, High Legh, Carrington, Peover Superior, Rostherne, Ollerton, and Plumbley, 1 each. In the majority of cases, pneumonia also occurred.

Rheumatic Fever.—Only 2 deaths were registered; 1 took place in the Altrincham Hospital in January (M., 21 years, belonging to Timperley); the other occurred in Hale in May (43 years).

Phthisis.—23 deaths were registered. They included 14 M. and 9 F. One was under 1 year of age; 2 more under 5 years of age; 1 at 7 years; and the remainder all lay between 21 and 59 years. The Townships affected were as follows :—Hale, 6; Timperley, 4; High Legh and Northenden 3 each; Dunham Massey, Baguley, Ashley, Partington, Peover Superior, and

Mobberley, 1 each. The deaths in previous years were—1898, 12; 1897, 19; 1896, 19; and 1895, 14; so that 1899 appears to have been rather worse than the average. (Deaths occurring, among strangers, in the Consumption Hospital, are not included in this account.)

Bronchitis, Pneumonia, etc.—The deaths from these causes were 52, which is equivalent to a Rate of 2·2. In 1898 the Rate was 1·8; in 1897, 2·4; in 1896, 2·8; and in 1895, 2·4.

Heart Disease.—The deaths from this cause were 37, which is equivalent to a Rate of 1·6. In 1898 the Rate was 1·3; in 1897, 1·4; in 1896, 1·7; and in 1895, 1·1.

Alcoholism.—The following 4 cases are the only ones in which death is attributed wholly or partially to alcoholism; Northenden, February, F., 41 years; Plumbley, July, M., 59 years; Aston, August, M., 38 years; and Hale, November, M., 36 years.

Cancer.—16 deaths were referred specifically to this disease; 11 being females, and 5 males. The youngest was 36 years and the oldest 66 years. The organs affected were: stomach in 4 cases, liver in 3 cases, and the remainder (all females) uterus or breast.

Isolation Hospital.—The District has still no Hospital of its own, but some use has been made of those belonging to its neighbours. Thus, the Altrincham Hospitals have received 6 cases of scarlet fever and 1 of enteric fever; the Knutsford Temporary Hospital 6 of scarlet fever; the Salford Hospital 1 of scarlet fever; the Union Workhouse Hospital 1 of diphtheria; and a private hospital 1 of enteric fever. The Withington Urban District Council is just commencing the erection of its Hospital at Baguley. The Joint Hospital Board is also still considering the provision of a Smallpox Hospital; but the difficulty of finding a site remains as great as ever, and no progress has been made during the year beyond the consideration of a few sites, none of which were found to combine the necessary conditions of suitability and cheapness.

Systematic Inspection.—This is carried out with as much thoroughness as the limited strength of the Staff permits; but it must be confessed that it is somewhat superficial; for anything like a house-to-house inspection is a simple impossibility.

Abatement of Nuisances.—153 cases have been reported to the Council, and served with notices. At the close of the year only 6 cases remain unattended to, and these have all had “final notices.”

Refuse Removal.—Scavenging by contract has been efficiently carried out during the year, at a cost of £530. This is limited

to the 4 Townships of Hale, Dunham Massey, Timperley, and Northenden. The cost is rapidly increasing; and the Committee (named in my last Annual Report), is still considering whether the work might not be more economically performed by the establishment of an Official Scavenging Department.

Sewage Works.—During the year the Mersey and Irwell Committee's Inspectors have as usual paid frequent visits. The effluents have usually been found good. A complaint of the Northenden effluent was due to an accidental communication between the surface and the under drains. This is an accident whose occasional occurrence cannot be guarded against on land infested with rats and moles. Complaints of the Timperley effluent were due to the discolouration of the sewage by spent tan-liquor; the firm causing this pollution was proceeded against under Sec. 16 of the Public Health Acts Amendment Act 1890, on November 20th, and a conviction obtained.

Bexton.—On February 10th a Local Government Board enquiry was held at the office of the Knutsford Urban District Council. A loan of £350 was applied for, to enable a sewer to be laid along Toft Road, Bexton, and connected with the Knutsford system. This loan (as was expected) was refused, owing to the fact that the outfall works are not considered satisfactory.

Dunham Massey.—The expectation of last year has not been fulfilled, although the plans were passed and the loan granted. An unexpected difficulty arose as to the approach road to the site. This crossed the C.L.C. Railway on the level, and the vendors having no legal right of way, the Railway Company had to be negotiated with, and it was found practically impossible to come to terms. The whole scheme had to be abandoned, and a complete set of new plans prepared for a different site, which would increase the estimated cost of the scheme by £1100. But before anything further was done, a larger scheme was put forward for amalgamating the new outfall works required by Timperley with those of Dunham. When the Dunham Estate was asked for the needful extra land, a third and still larger scheme was propounded by the owners. Desiring to remove all sewage outfall works from the Sinderland Brook, they offered a still larger plot of suitable land on the banks of the river Bollin, and lying to the S.W. of Dunham Woodhouses, with the idea (I believe) that the Altrincham Urban District, which is itself in similar trouble, might also come in. There are no great engineering difficulties, and, speaking broadly, it would appear very desirable that one sewage-outfall works should take the place of 3 separate, if smaller, ones. I much fear however that divergent views will arise from the clashing of the various interests concerned; and

at the moment of writing it is impossible to forecast the position which even a few weeks may create. In the meantime a large amount of new property recently erected at Broadheath is suffering great inconvenience and some danger to health from the absence of a main outfall sewer. This is the one point which makes the question of the Dunham new sewage works of such pressing importance.

Northenden.—It is probable that an entire re-arrangement of this Sewage Farm may be necessitated by the new railway about to be built by the Manchester City Railway Company. The plans show this new line as passing exactly over the Settling Tanks. Under these circumstances it is not worth while to say any more just now about the existing arrangements.

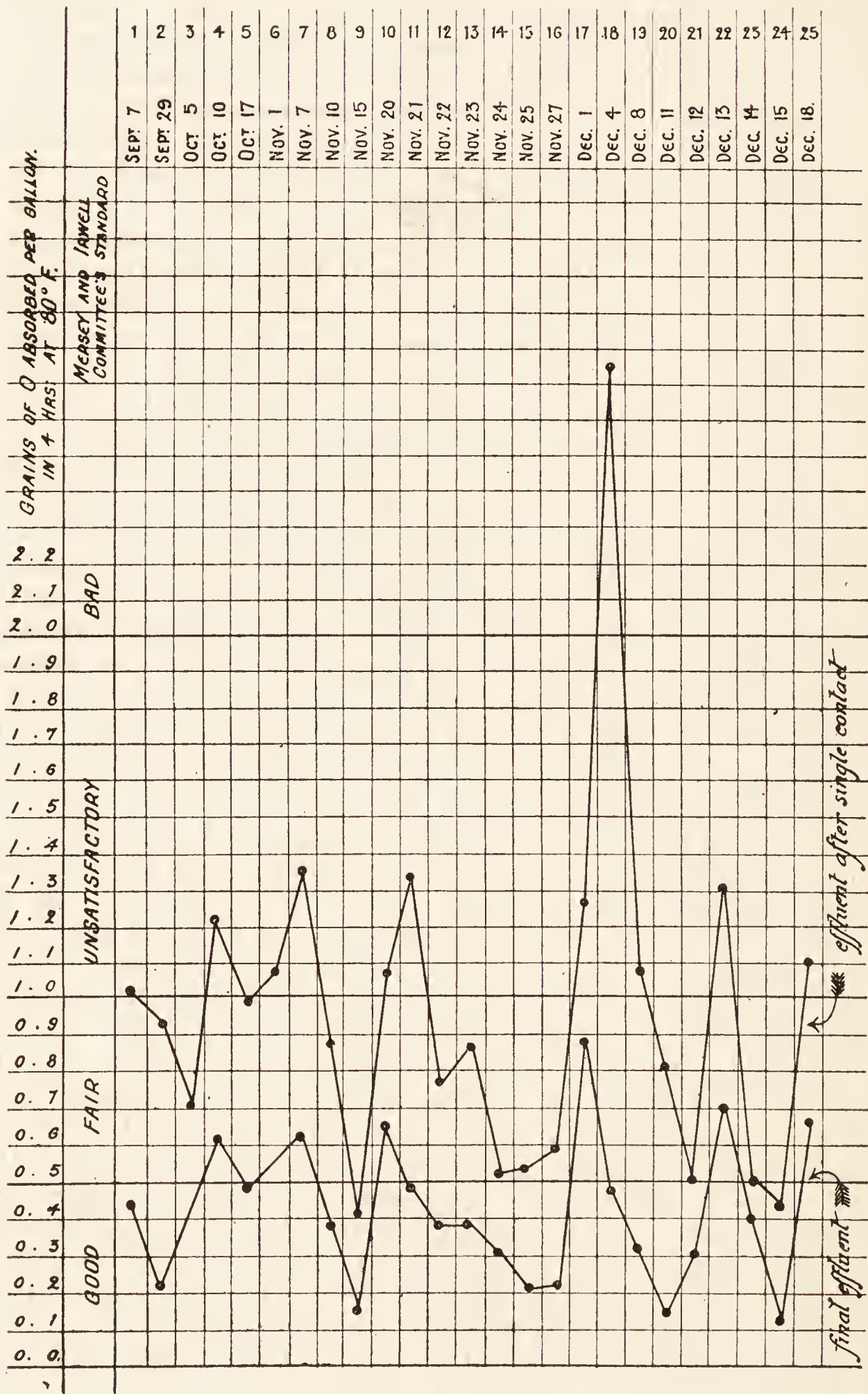
Northen Etchells.—A few houses on the extreme edge of the Township are about to be provided with a sewer which will join the system of the Cheadle Urban District Council upon terms which have been arranged.

Timperley.—Allusion has already been made to the difficulties experienced at Dark Lane in consequence of chemical refuse being passed into the sewer; but independently of this temporary matter, the general position remains very unsatisfactory. A new scheme and a new outfall are imperatively required, as I said a year ago; and I am disappointed that no real progress has been made during the past twelve months. There has been consideration and discussion, and there are many excuses for delay; the chief of which has perhaps been the suggestion of a joint undertaking with Dunham; another being a natural hesitation to incur the large expense which must be involved. The site has been improved during the year as far as possible by making some temporary cinder filters, but this is, at the best, but a makeshift.

Hale.—Plans are now completed for dealing with the sewage of the low-lying area known as Hale Moss. The arrangement known as the “Shone Ejector” will be used for raising the sewage. The sewers are urgently required, and no unnecessary delay should take place in carrying out this work.

In my last Annual Report I gave a full description of the new works designed at the Bank Hall Lane Sewage-Farm. Avoiding repetition, I can briefly record a year which has been full of absorbing interest, not without some natural anxiety. The results, from a scientific point of view, have quite answered to all expectations. The works, and the novel ideas which are shown in practical application, have been closely inspected and examined by a large number of interested persons, including a member of the Committee of Experts advising the Manchester Corporation, Members and Officers of the Cheshire County Council and of the Mersey and Irwell Joint Committee; also of

the Manchester Corporation and of many Urban and Rural Councils. Although these gentlemen have not been absolutely unanimous in accepting the experimental results obtained as likely to continue equally satisfactory when operations on a larger scale are attempted, I think I may claim that criticism and incredulity have been directed only towards the *amount* of work attempted to be done by a given *area* of contact-beds; and that the leading principles of the installation have been generally acknowledged as scientifically correct. I append a diagram showing the results obtained by the oxygen-absorption test (as used by the Mersey and Irwell Joint Committee) during the last four months of the year. It must be remembered that the works are incomplete, consisting as they do of a single contact-bed only, which receives *crude* sewage, and whose filtrate is passed onto the surface of a plot of land. Yet with this imperfect scheme results are obtained which need not fear comparison with those of any sewage works in the Kingdom. My diagram is open to criticism on two grounds, viz.: that the dates of the analyses are separated by irregular intervals; and that the samples taken on each date may possibly not represent the true *average* of that day's work. The reply to this is that there is no staff of servants available to give continuous attention to the taking of samples; and that I must either go without samples altogether, or be satisfied with such as can be taken hap-hazard on such days and at such hours as chance to be convenient for the Inspector or his Assistant to visit the farm, when in the neighbourhood on other business. As a matter of fact I do not myself believe that the diagram is any worse for these circumstances; for it must be admitted that it accurately represents just such sampling as is done in practice by the Mersey and Irwell Joint Committee; and after all, that is the only standard to which we are compelled to conform. In the diagram every result is given between the first and last dates shown; nothing is omitted, and nothing is "cooked." I think it may be accepted as an honest record of the results normally obtained. I therefore venture to direct your attention to it with a certain degree of confidence. On Dec. 4th the only bad result noted was found; and it was afterwards ascertained that the cause of this was the temporary necessity of discharging a small quantity of crude sewage into the channel which normally conveys filtrate only. Omitting that single result it will be observed that the final effluent out of 22 analyses was 3 times below 0.2, 3 times again below 0.3, 7 times again not exceeding 0.4, and 4 times not exceeding 0.5, making 17 times when the effluent was "Good;" whilst none of the remaining 5 exceeded 0.7, and so were all well within the "Fair" class. This result is sufficiently satisfactory; and yet I am even more proud of



the intermediate results given by the effluent after single contact. This stage is not supposed to show anything approximating to a finally good result, yet as a matter of fact the diagram shows that this effluent would have been classed 4 times as "Good," and 10 times besides as "Fair," whilst on the remaining 10 occasions it never reached 1·4, and would therefore have been only moderately "unsatisfactory," even if it had been the final effluent instead of only the intermediate stage. The crude sewage is not shown on the diagram but its average strength had in earlier experiments been settled to be about 4·0; so that critics are welcome to the admission that the Hale sewage is a particularly mild specimen of the purely domestic variety. But when all this is allowed for, the results still remain in my opinion little short of marvellous, when it is added that during the past twelve months every square yard of this contact-bed has dealt with a minimum quantity of 400 gallons, per day; and that on most days this amount has been exceeded, and on some days even doubled. Calculated by the acre this corresponds roughly to a minimum of 2,000,000 gallons per day, with a larger quantity on most days, occasionally touching a maximum of 4,000,000. The length of time over which the work has been carried on is sufficient to preclude the suspicion that the results obtained have been merely accidental or unreliable. I am not aware of any other system of sewage treatment which makes any pretence to attain such results, and I again explain, as I did in my last Annual Report, that the two essential features of these works, which differentiate them from all others in existence, are (1) the use of an automatic mechanism, and (2) the construction of the contact-bed. By the use of "Ridgway's Automatic Distributor" (fully explained in my last Annual Report) the sewage is delivered in measured quantities onto the 6 compartments of the contact-bed in regular succession and rotation. These amounts being much smaller than would fill the compartment, each is at liberty to percolate slowly from above downwards, thus exactly fulfilling the definition of the proper requirements for aërobic bacteriological treatment of sewage, originally laid down by the State Board of Massachusetts; viz.: "the passage of thin films of liquid over surfaces in the presence of air." This point, it may be remarked, appears to have been lost sight of by those who advocate the working of a contact-bed in 8-hour cycles, of which 2 hours are occupied in "standing full." As a matter of fact, each of the six compartments of my contact-bed would hold 2,000 gallons, measured to the normal bottom level; but below this apparent level the bottom has been further excavated and deepened, so that 1,000 gallons are contained below a line drawn 15 inches above the apparent bottom; and this volume of

sewage can only be discharged through a bent pipe, which starts at the lowest point, and delivers at the 15-inch line. Thus each charge in turn as it percolates downwards drives out through the bent pipe the last previous charge which has been lying in the bottom of the bed for two hours; and itself in turn rests there for two hours before being expelled by the next succeeding charge.

Unfortunately these beds, good as they are, are not nearly large enough to deal with the total volume of sewage arriving on the farm and a portion has been necessarily run onto the land; (a separate plot with a separate outfall). It is interesting to note that the effluent at this outfall, *i.e.*, from broad irrigation on land, has been generally unsatisfactory. On the new land, where the newest works are in course of completion, I have experienced much disappointment at the serious delays which have occurred mainly owing to a failure in the delivery of properly graded cinders. Early in 1900 I hope to have this installation at work, and confidently expect from it even better results than those already obtained. It consists of a similar contact-bed to that already described, in six compartments, each of which contains 40 square yards (in place of 30). Also instead of receiving crude sewage it will receive the effluent from a tank of 50,000 gallons' capacity; which, according to the latest experiments on the Manchester Corporation Sewage Works at Davyhulme, will be capable of passing somewhere between 50,000 and 100,000 gallons per day, without any formation of sludge.

I am extremely sorry, from a selfish point of view, that after March 31st this farm with all its works, complete and incomplete, will pass into the possession of a new Authority, and be under the control of new Officers. I am afraid that unless the work already done during the past two years is sympathetically appreciated, and that which remains to be done is carried out in full agreement with the scientific theories which I have held, and which I have endeavoured here briefly to explain, the results may be more or less disastrous, in spite of the best intentions in the world.

A little fable taken from "Alice in Wonderland" so exactly expresses the position that I cannot refrain from quoting it. Alice is taking tea with the Mad Hatter and the March Hare. The following scene occurs:—

The Hatter was the first to break the silence. "What day of the month is it?" he said, turning to Alice: he had taken his watch out of his pocket, and was looking at it uneasily, shaking it every now and then, and holding it to his ear.

Alice considered a little, and then said "The fourth."

"Two days wrong!" sighed the Hatter. "I told you butter wouldn't suit the works!" he added, looking angrily at the March Hare.

"It was the *best* butter," the March Hare meekly replied."

"Yes, but some crumbs must have got in as well," the Hatter grumbled: "You shouldn't have put it in with the bread-knife."

The March Hare took the watch, and looked at it gloomily: then he dipped it into his cup of tea, and looked at it again: but he could think of nothing better to say than his first remark, "It was the *best* butter, you know."

Moral (added by myself) Butter, even if the best, is not a suitable lubricant for the works of a watch. *Verb. sap. sat.*

Mem.—A few copies of my last Annual Report are in stock, and I shall be pleased to supply one, on application, to any reader of the present volume who would like to have the description of the mechanism.

Rivers Pollution.

Houses unfit for Habitation.

Overcrowding.

Building Bye-laws.

New Streets.

Workshops.

} See Inspector's Report.

School Accommodation.—There is no information as to the number of places. Many teachers inform the Medical Officer of Health when cases of non-notifiable diseases occur. The sanitary condition of the various schools and play-grounds is generally satisfactory.

Lodging-houses.—Common lodging-houses exist in the Urban Districts, but there are none in this Rural District.

Cleansing of Persons Act.—Nothing has been done by the Council, but the Board of Guardians for the Bucklow Union has provided a steam disinfecter for cleansing the garments of all the vagrants admitted. I cannot see any reason why this disinfecter should not be of more extended use; but the Board is at present unwilling to permit this.

Water Supply.—No action has been taken by the special Committee in the direction indicated in my two previous Annual Reports. Of course there are difficulties in the way; but in other matters the Council does not allow "difficulties" to paralyse its action entirely, and I am at a loss to know why it should do so in this particular matter. The little hamlet of Peover Heath is the principal example. A water supply and a public sewer are urgently required, and plans for both have long been in existence in the Surveyor's office. The Committee and the Council must bear the responsibility for the dead-lock. This is the third successive year that I have drawn attention to the matter and declared it "urgent."

Water Analysis.—The number of samples requiring examination appears to diminish; probably owing to action taken on

previous occasions. During 1899 I have only made 9 analyses. The results were as follows:—

DATE.		LOCALITY.		RESULT.
March 31	...	Styal	...	Doubtful.
April 22	...	Mobberley	...	Good.
July 10	...	Dunham Massey	...	Doubtful.
July 10	...	Styal	...	Doubtful.
September 4	...	Pickmere	...	Good.
September 8	...	Tabley Superior	...	Bad.
September 15	...	High Legh	...	Very Good.
October 1	...	Tabley Superior	...	Bad.
November 1	...	Tabley Superior	...	Bad.

Of the above, the first and fourth were the same water: and the sixth, eighth, and ninth were also one water. The second was a public well. The fifth is from premises where a case of enteric fever occurred in August, (though the diagnosis was not confirmed by bacteriological examination), and where the medical attendant reports that there has been dysenteric diarrhoea present ever since. The water supply is complained of, and cannot be held free from suspicion; though the chemical analysis gave excellent results.

The examination of water samples, taken within the District for private owners, gave the following results:—Very bad, 1; bad, 5; doubtful, 1; good, 2. Of the 5 bad ones, 3 were successive samples from 1 well.

Dairies and Cowsheds.—For the following statistics I am indebted to Mr. McKenzie, who, with Mr. Turner, the Assistant Inspector, has continued steadily during 1899 the systematic work commenced in 1897.

It is particularly pleasing to find, and not less important to place formally on record, that Mr. McKenzie is able to report in the following words: “Absolutely no opposition has been met with from any person directly or indirectly affected.” The number of persons registered under the Order is now 172; of whom 166 are cow-keepers, and 6 are purveyors of milk only. Of the premises and cowsheds occupied, 94 are satisfactory, whilst 78 require improvements, some of them to a considerable extent. There are 468 premises in the District occupied by cow-keepers, registered and unregistered. This leaves the large number of 296 unregistered. Of the 468 premises, 153 are now satisfactory. Last year the number was 117, and the year

before 72. Progress can thus be measured. 24 formal Notices have been served during 1899, but in many cases, extensions of time have been granted, and the improvements will be carried out during 1900.

Lime-washing Notices were sent out as usual in May and October.

During the latter half of the year cases of scarlet fever have occurred on the premises of registered milk-sellers. These have all received special attention.

A Special Committee has sat twice, to consider two points raised by those members who evidently have no love for the Dairies' Order *per se.*; viz.: (1) to restrict all action under the Order to *Registered* cow-keepers; and (2) to exempt all existing cowsheds from requirements as to cubic capacity. The latter point is not of very great importance in this District, as improved ventilation will largely compensate for want of air-space; it being borne in mind that we have probably not a cowshed in the District from which the cattle are not turned out regularly to graze. The former suggestion, which practically means that exemptions from registrations under Sec. 6 are to be extended, and considered as exemptions from the whole Order, I believe to be bad in law; but it appears difficult to secure an authoritative opinion. It is likely that less than a score of milk-sellers will be affected by the decision; so that the practical importance to us is not so great, as the legal importance of settling the fundamental principle. The Committee has not yet made any recommendations.

Port Sanitary Authority.—On two occasions a warning notice was received from Liverpool as to persons who had come into the District after arriving at that port on vessels which had had cases of small-pox on board. These persons were kept under observation for a time, but fortunately no cases followed their arrival.

Subjects.—A few of the subjects covered by the Report of the County Medical Officer of Health will be found to be omitted. It may be assumed in such cases that they are matters belonging mainly to towns, and either absent or relatively unimportant, in this Rural District.

Committees.—There is one matter in which a word of warning ought to be addressed by some one to the members of the Council. I do not know that it is particularly my business; but as myself an old member of the Council, and one who retains a lively interest in the maintenance of its credit and reputation, I shall hope to be pardoned if I venture beyond the limits usually observed by a mere official, in the following criticism.

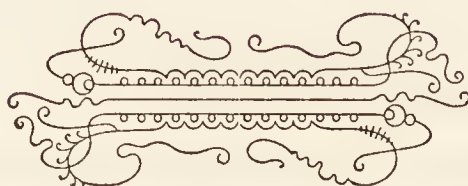
An excellent scheme has been initiated by Mr. Leigh, our

valued Clerk, for saving the time of the Council by remitting the discussion of certain local details to a local Committee, composed either of three or four members of the Council alone, or of a similar number re-inforced by a few representatives of the Parish Council. The plan has worked well, and I can give it my hearty support, with one important reservation : the work of such a Committee must be restricted to the carrying out of the details of such work as has in principle, and in its broad lines, been ordered by the Council itself. It will be a fatal mistake, if, for the sake of saving time or avoiding discussion, the Council abdicates its own powers of initiation, permits a committee to usurp them, and sinks itself to the undignified position of being a mere confirmer of the decisions of such Committee on points which ought to belong to itself. I am sorry to say that I see, (and perhaps as a partial outsider I see more than the members themselves), a distinct tendency in that direction ; and believing, as I honestly do, that matters which the legislature has placed in the hands of a large body should not be relegated to a small section, I trust that all thinking members will see the point, will set themselves to avoid the danger, and will pardon their humble servant if he has ventured out of the beaten track to warn them of a danger which is both insidious and real.

T. W. H. GARSTANG,

M.R.C.S., D.P.H.

January, 1900.



INSPECTOR'S REPORT.

I have the pleasure to present to the Council my 14th Annual Report. A good deal of my work is included in the Medical Officer of Health's Report, and this therefore must be looked upon as containing only those matters which he has not already dealt with.

Impending Alterations.—After a County Council enquiry extending over three days an order has been made, and will come into force after March 31st next, whereby a new Urban District will be formed from a portion of the existing Township of Hale. This will diminish the area of the Rural District by 1,283 acres; and its population by a number estimated at 4335; also its rateable value by £28,302. The remainder will form a new Rural Township of Ringway which will contain 2,326 acres, an estimated population of 470, with a rateable value of £4769.

Sanitary Congress.—The Council again kindly appointed me a Delegate to the Congress held this year at Southampton. It is needless to say that I found plenty to interest me in the various papers and discussions. These meetings are of very great value as they keep one acquainted with the latest views of the leading men in the various professions represented.

Office.—The work of my department is still carried on from the office at 7, Market Street, Altrincham, which was rented three years ago as an experiment. It has been found to be a real necessity and convenience, not only for the transaction of ordinary business but also for the holding of numerous Committee meetings. The present room is about to be exchanged for two rooms on the ground floor which will give increased accommodation. The telephone will also be introduced, and there will be a further great convenience and saving of time in the power to communicate directly with the Council's Office at Knutsford.

Infectious Diseases.—91 visits of enquiry have been paid to cases notified, in all parts of the District. Printed leaflets, disinfectants, and soap have been distributed to the cases; and warnings given in and around centres of infection. 16 visits have been paid to houses where deaths from phthisis had occurred, and in most instances disinfection was accepted.

Hale Sewers.—Four sections (let in separate contracts) of this extensive scheme have been completed, and a fifth is now proceeding. The outfall works are not nearly completed; nor, owing to unexpected delays, can they now be completed before the end of next March. I shall then cease to be responsible for them; and feel it to be somewhat unfortunate and unsatisfactory that they should have to be handed over for completion by

some one who will necessarily be ignorant of the details of the work done during the last three years, and of the difficulties encountered and overcome. Moreover the bacteriological system, introduced on the advice of the Medical Officer of Health, which is yielding such excellent results in our hands, even whilst the works are incomplete, is undeniably a delicate scientific process, and requires skilled supervision. It will be very easy to throw the whole works "out of gear" if they are entrusted to the care of any Officer who is not fully conversant with the principles upon which they ought to be managed.

It will thus be gathered that a vast amount of time and labour has been devoted to the above work; also to somewhat similar work in other Townships; (see Medical Officer of Health's Report). This in my opinion is rightly one of the first considerations of the Council in dealing with the rapidly growing Semi-Urban portions of the District.

Rivers Pollution.—14 notices under this Act have been served during the year. In one case legal proceedings were taken but the remainder have all been remedied without that necessity.

Factory and Workshops Act.—28 premises are now registered under this Act. Regular inspection of them is maintained. Two cases of overcrowding of "special rooms" were reported. These are now abated. The sanitary arrangements are satisfactory.

Private Streets Works Act.—Four streets which were in a bad condition have been put into thorough repair at a cost of over £1200 to the owners of frontages. They are, in Northenden, Albert Street, length 143 yards, cost £262 19s. 6d.; and Lingard Road, length 145 yards, cost £342 11s. 3d.; and in Hale, Henry Street, length 139 yards, cost £291 18s. 0d.; and Lisson Grove, length 153 yards, cost £321.

Housing of the Working Classes Act.—Six back-to-back cottages have been condemned, and are now under notice.

Disinfecting.—35 premises have been fumigated after infectious diseases. Three schools and numerous infected apartments have also been cleansed with liquid Chlorinated Lime as recommended by the County Medical Officer of Health. For the disinfection of bedding and clothing it is very desirable that a good stove (preferably a steam disinfecter) should be erected in some central position in the District. There would be no difficulty in obtaining a site.

Overcrowding.—10 cases have been dealt with; 3 of them occurring in the condemned cottages already mentioned; and all have been remedied.

Building Plans.—These are considered by a special Committee immediately prior to each Council Meeting. 243 sets of

plans were submitted ; of which 181 were approved as drawn, 57 were approved after amendment, and 5 were rejected altogether. The new buildings comprised 289 dwelling-houses, 45 alterations and additions, 2 churches, 5 shops, 9 cowsheds, and 7 new roads and sewers. Six owners were summoned to appear before the Council for infringement of bye-laws. One case was prosecuted and a fine inflicted. The new bye-laws are now printed, and deposited with the Local Government Board, and will shortly be in operation. They will demand from your Officers even greater diligence than in the past, to see that their requirements are strictly complied with.

Water Certificates.—Under the Public Health Water Act, 1878, there have been granted 7 certificates of occupation to new houses in the Townships of Warburton, Timperley, Northen Etchells, Plumbley, Aston-by-Budworth, and Dunham Massey.

Hackney Carriages.—82 carriage and drivers' Licenses have been issued in the Townships of Hale, Dunham Massey, and Timperley. Three licenses were withdrawn for misconduct. A Cabman's Shelter at Peel Causeway Station has been acquired ; and is now being repaired and painted.

Prosecutions.—These were conducted in 2 cases only ; and they have been above alluded to.

Canal Boats.—During the year I paid 48 visits, and inspected 87 canal boats. Of this number 15 were boats discharging manure at the various wharves in Dunham and Carrington. The general condition of these boats was good, considering the nature of their traffic. The cabins were very fairly clean. Painting, ventilation, and general repairs were good. None of them were used for sleeping purposes. In 2 cases attention was drawn to foul bilge-water, which was at once emptied. The 87 boats were found registered for 312 persons, (60 fore and 252 aft), and occupied by 210 persons, viz. : 149 men, 49 women, and 12 children. The latter were all under school age, with one exception. This child attended school in Warrington. The only irregularities discovered were, 1 certificate not indentifying owner, 1 case of indistinct marking, and 1 case of overcrowding, (but this was only in an afternoon). No cases of overcrowding on night-inspection were noticed. The trips are only short ones, and the occupants are generally able to sleep ashore.

It has been my good fortune to have never found a case of infectious disease on a canal boat during the whole of my 14 years.

The boats taken altogether were found in good repair, clean, and ventilated ; and with means for the separation of the sexes. Double bulkheads were found provided on all the manure boats. Adequate water vessels were also provided.

J. McD. McKENZIE,

January 15th, 1900.

Inspector and Surveyor.

(A) Table of **DEATHS** during the Year 1899, in the Bucklow Rural

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (Columns for Population and Births are in Table B.) Rural portion of Registration Sub-district of (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)	
Altrincham	147	33	11	7	7	54	35	{ Under 5 ... 5 upwards ...
St. Anne's Home	9	...	...	1	3	5	...	{ Under 5 ... 5 upwards ...
Lymm	39	8	4	...	2	11	14	{ Under 5 ... 5 upwards ...
Knutsford	53	13	5	1	2	13	19	{ Under 5 ... 5 upwards ...
Wilmslow	88	15	7	2	4	36	24	{ Under 5 ... 5 upwards ...
TOTALS	336	69	27	11	18	119	92	{ Under 5 ... 5 upwards ...

The subjoined numbers have also to be taken into

Deaths occurring outside the district among persons belonging thereto.	19	1	...	...	2	13	3	{ Under 5 ... 5 upwards. ...
Deaths occurring within the district among persons not belonging thereto.	22	1	1	2	6	12	..	{ Under 5 ... 5 upwards. ...

(B) Table of **POPULATION, BIRTHS, AND OF NEW CASES OF**
of Health during the Year 1899, in the Bucklow Rural District;

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. Rural portion of Registration Sub-district of (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Last Census. (b)	Estimated to middle of 1899. (c)	Registered Births. (d)		Small-pox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
Altrincham	8894	11267	269	{ Under 5. 5 upwds.	...	8 30	... 1	... ...
St. Anne's Home	...	...	...	{ Under 5. 5 upwds.	...	...	...	...
Lymm	3390	3338	69	{ Under 5. 5 upwds.	...	1 12	1 2	... ...
Knutsford	3661	3653	81	{ Under 5. 5 upwds.	...	3 10	... 1	... ...
Wilmslow	4437	5101	116	{ Under 5. 5 upwds.	...	3 16	... ...	1 ...
TOTALS	20382	23359	535	{ Under 5. 5 upwds.	...	15 68	1 4	1 ...

State here whether "Notification of Infectious Disease" is compulsory in the District,--Yes.

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																					
Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever	Phthisis.	Bronchitis, Pneu- monia, & Pleurisy	Heart Disease.	Influenza.	Injuries.	All other Diseases.	Total.
				Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
...	...	...	...	...	...	...	...	...	...	...	...	1	7	...	1	10	...	...	2	23	44
...	2	...	...	...	1	...	...	...	...	...	...	...	...	1	11	12	20	4	5	47	103
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	...	...	...	...	2	9
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	1	3	...	...	...	6	12
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3	4	3	4	1	11	27
...	1	...	...	...	...	...	...	...	...	...	...	4	2	...	...	...	...	1	...	10	18
...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	1	3	4	4	7	13	35
...	...	...	1	...	...	...	...	...	...	...	...	2	2	...	...	6	1	2	...	8	22
...	...	...	...	...	1	...	...	...	...	...	...	...	2	...	5	13	5	3	4	33	66
...	1	...	1	...	...	...	...	...	...	...	...	7	13	...	2	19	1	3	2	47	96
...	2	...	...	...	2	...	...	2	...	1	...	...	3	1	27	32	32	15	17	106	240

account in judging of the above records of mortality.

...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	2	2	4	1	...	7	18
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	...	...	...	6	6	20

INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer
classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.										Number of such Cases re- moved from their Homes in the several Localities for Treatment in Isolation Hos- pital.		
FEVERS.					Cholera.	Erysipelas.	12	13		Scarla- tina.	Diph- theria.	Enteric or Typhoid Fever.
Typhus.	Enteric or Typhoid.	Continued	Relapsing	Puerperal.								
5	6	7	8	9	10	11				2	3	6
...	1	...	...	...	...	...	...	...	...	1	...	...
...	4	...	...	...	...	5	...	...	...	7	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	1	...	...	...	1	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	...	...	2	...	1	...	...	...	2	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	...	...	...	...	1	...	...	...	2	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	...	...	...	...	...	...	...	...	1	...	...
...	6	...	...	2	...	8	...	...	...	12	1	2

SUPPLEMENTARY TABLE I.

Cases of Infectious Diseases notified, 1899, arranged according to Localities.

	Scarlet Fever.	Diphtheria and Membranous Croup.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Total.		Scarlet Fever.	Diphtheria and Membranous Croup.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Total.
Ashley ...	5	...	1	...	...	6	Agden ...	...	...	...	...	...	...
Baguley ...	5	...	1	...	...	6	Aston-by-Budworth ...	...	...	...	...	...	...
Dunham Massey ...	6	1	1	...	1	9	Bollington ...	...	...	...	...	...	...
Hale ...	16	...	1	...	4	21	Carrington ...	2	...	...	...	...	2
Timperley ...	6	...	1	...	...	7	High Legh ...	7	3	...	...	...	10
							Millington ...	3	...	...	...	...	3
							Partington ...	1	...	...	...	...	1
							Warburton ...	...	...	...	...	1	1
ALTRINCHAM ...	38	1	5	...	5	49							
							LYMM ...	13	3	...	...	1	17
Bexton ...	...	...	...	...	...	...							
Marthall ...	...	...	...	...	...	...							
Mere ...	...	...	...	...	1	1							
Ollerton ...	...	...	...	1	...	1							
Peover Inferior...	1	...	...	...	...	1	Mobberley ...	2	...	...	...	...	2
Peover Superior	...	...	...	...	...	...	Northenden ...	...	1	1	...	1	3
Pickmere ...	...	...	1	...	...	1	Northen Etchells ...	16	...	...	...	...	16
Plumbley ...	6	1	...	...	...	7	Styal ...	1	...	...	...	...	1
Rostherne ...	...	...	...	...	...	...							
Tabley Inferior	2	...	...	...	...	2							
Tabley Superior	3	...	...	...	...	3							
Tatton ...	1	...	...	...	...	1	WILMSLOW ...	19	1	1	...	1	22
Toft ...	...	...	...	1	...	1							
							SUMMARY :						
							<i>Altrincham</i> ...	38	1	5	...	5	49
KNUTSFORD ...	13	1	1	2	1	18	<i>Lymm</i> ...	13	3	...	...	1	17
							<i>Knutsford</i> ...	13	1	1	2	1	18
							<i>Wilmslow</i> ...	19	1	1	...	1	22
							<i>Grand Total</i> ...	83	6	7	2	8	106

SUPPLEMENTARY TABLE II.

Shewing Births, Birth-rate, Deaths, and General and Zymotic Death-rates, and compared with average of last 10 years ; and Deaths in Old Age and Infancy, and percentages of these to Total Deaths ; for the Year 1899.

	TOTAL,			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
	Births.	Deaths	Zymotic Deaths.	Average.	1899.	General.		Zymotic.		At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
						Average.	1899.	Average.	1899.				
Altrincham .	269	155	8	24·3	23·9	14·0	13·8	1·0	0·7	37	33	23	21
Lymm	69	41	0	23·6	20·7	13·3	12·3	0·9	0·0	14	8	34	17
Knutsford ...	81	52	6	25·0	22·2	16·4	14·2	0·7	1·7	19	13	37	25
Wilmslow	116	85	6	25·2	22·7	15·6	16·8	0·9	1·1	25	15	29	18
Total ...	535	333	20	24·0	22·9	14·2	14·3	0·9	0·8	95	69	29	21

SUPPLEMENTARY TABLE III.—BIRTHS.

Rural part of Sub-district of	1st Quarter.				2nd Quarter.				3rd Quarter.				4th Quarter.				Total.			
	M.	F.	Total.	Rate.	M.	F.	Total.	Rate.	M.	F.	Total.	Rate.	M.	F.	Total.	Rate.	M.	F.	Total.	Rate.
Altrincham ...	24	29	53	19·5	37	41	78	28·4	27	36	63	22·7	42	33	75	26·4	130	139	269	23·9
Lymm ...	6	6	12	14·5	8	13	21	25·2	10	11	21	24·8	9	6	15	17·8	33	36	69	20·7
Knutsford ...	8	17	25	27·7	8	14	22	24·1	12	4	16	17·4	11	7	18	19·5	39	42	81	22·2
Wilmslow ...	9	12	21	17·0	17	19	36	28·9	15	11	26	20·6	14	19	33	25·7	55	61	116	22·7
Total ...	47	64	111	19·6	70	87	157	27·4	64	62	126	21·6	76	65	141	23·9	257	278	535	22·9

SUPPLEMENTARY TABLE IV.—DEATHS.

	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.
Altrincham	45	16·6	28	10·2	33	11·9	49	17·3	155	13·8
Lymm ...	12	14·5	9	10·8	10	11·9	10	10·9	41	12·3
Knutsford ...	9	9·9	15	16·4	16	17·3	12	13·0	52	14·2
Wilmslow .	28	23·5	21	16·8	17	13·5	19	14·8	85	16·8
Total ...	94	16·7	73	12·7	76	13·0	90	15·3	333	14·3

SUPPLEMENTARY TABLE V.

Shewing the position of the Sub-districts as compared with 29 other Rural Districts and Sub-districts in Cheshire in 1898.

	Birth Rate.	Place in List.	Death Rate.	Place in List.	Zymotic Death Rate.	Place in List.	Infantile Mortality Figure.	Place in List.
Best of 33 ...	36·4		8·9		0·0		50	
Worst of 33.	20·0		21·6		3·1		210	
Altrincham	21·6	30	10·4	2	1·3	18	107	14
Lymm ...	23·9	23	10·5	3	0·2	3	100	12
Knutsford ...	27·1	10	10·7	4	0·6	8	80	4
Wilmslow ...	26·1	14	16·2	26	0·4	6	100	12

SUPPLEMENTARY TABLE VI.

Shewing Population, Estimated, 1899; Total Deaths, Deaths from Special Diseases, and at Special Ages, in entire Sanitary District, the Registration Sub-districts, and the individual Townships, in 1899.

POPULATION ESTIMATED 1899.	REGISTRATION DISTRICTS AND TOWNSHIPS.	TOTAL DEATHS.	DEATHS FROM SPECIAL DISEASES.								TWO GROUPS OF AGES.	
			Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhoea.	Total Zy- motie.	Phthisis.	At 65 Years and Upwards.	Under 1 Year.
365	Ashley ...	6	...	...	1	...	...	...	1	1	2	1
905	Baguley ...	11	1	...	...	...	1	...	2	1	3	2
2337	Dunham Massey ...	29	1	...	...	...	...	3	4	1	8	6
4655	Hale ...	64	...	...	1	...	...	3	4	6	12	14
3005	Timperley ...	45	...	...	...	...	...	1	1	4	12	10
11267	ALTRINCHAM R.S.D.	155	2	...	2	...	1	7	12	13	37	33
85	Agden ...	1	...	...	...	...	...	...	...	...	...	1
385	Aston-by-Budworth ...	6	...	...	...	...	...	1	1	...	1	1
223	Bollington ...	...	...	...	...	...	...	...	...	...	...	...
420	Carrington ...	5	...	...	...	...	...	...	...	...	1	2
850	High Legh ...	7	...	...	...	...	...	...	...	3	1	1
285	Millington ...	5	...	...	...	...	...	...	...	...	4	1
670	Partington ...	10	...	...	...	...	...	2	2	1	3	1
420	Warburton ...	7	...	...	...	...	...	...	...	...	4	1
3338	LYMM R.S.D.	41	...	...	...	...	...	3	3	4	14	8
120	Bexton ...	1	...	...	...	...	...	...	...	...	1	...
223	Marthall ...	1	...	...	...	...	...	...	...	...	...	...
420	Mere ...	8	...	...	...	...	1	...	1	...	1	3
280	Ollerton ...	6	...	...	...	...	...	...	...	...	1	2
145	Peover Inferior ...	2	...	...	...	...	...	...	...	...	...	2
470	Peover Superior ...	9	...	...	...	...	1	...	1	1	5	1
225	Pickmere ...	2	...	...	...	...	...	...	...	...	1	1
390	Plumley ...	7	...	...	...	...	...	...	...	...	3	...
407	Rostherne ...	6	...	...	...	...	...	...	...	...	4	2
153	Tabley Inferior ...	...	...	...	...	...	...	...	...	...	...	...
491	Tabley Superior ...	9	1	...	...	...	2	2	5	...	3	2
149	Tatton ...	...	...	...	...	...	...	...	...	...	...	...
180	Toft ...	1	...	...	...	...	...	...	...	...	...	...
3653	KNUTSFORD R.S.D.	52	1	...	...	...	4	2	7	1	19	13
1320	Mobberley ...	20	...	...	...	...	1	...	1	1	6	4
2168	Northenden ...	42	...	1	1	...	...	3	5	3	12	8
758	Northern Etchells ...	14	...	...	...	...	1	1	2	1	5	1
855	Styal ...	9	...	...	...	...	...	...	...	...	2	2
5101	WILMSLOW R.S.D.	85	...	1	1	...	2	4	8	5	25	15
23359	{ ENTIRE SANITARY DISTRICT. }	333	3	1	3	...	7	16	30	23	95	69

Biddulph Urban District.

ANNUAL REPORT OF MEDICAL OFFICER OF HEALTH FOR 1899.

Population at Census, 1891, 5,290.

Estimated Population in middle of 1899, 5,820.

Area in Acres 5,057.

Birth Rate per 1,000 living, 36·1.

Death Rate per 1,000 living, 18·9.

Death Rate from Seven Principal Zymotic Diseases, 3·1.

Deaths under one year in proportion to 1,000 Births, 138.

Note.—The matters dealt with on pages 5 to 13 are to be read as a part of this Report.

Population.—The only basis upon which I am able to estimate the population is the number of inhabited houses. The Assistant Overseer informs me that in 1891, when the population was 5290, the number of houses was 1139; and that in 1899 there were 1254 houses. I think therefore I shall not be far wrong in estimating the population for 1899 at 5820. This is an increase of 245 over 1898; a rather larger increase than has been allowed in previous years, but which was quite anticipated from the number of new buildings being erected.

Births.—(See Supplementary Tables I. and III.) The number of births is 115 males and 95 females, total 210; which is equivalent to a Rate of 36·1. The Rates for the previous 10 years have been given as 29·4, 31·5, 39·2, 33·0, 38·0, 31·6, 38·1, 34·2, 31·2, and 35·7; of which the average is 34·4. 1899 is therefore 1·7 above the average. It would also appear to be slightly above the average in Staffordshire, which as a County has a relatively high birth-rate.

Deaths.—(See Supplementary Tables I. and II.) The number of deaths registered in the District was 109. One came

to my knowledge accidentally, which belonged to Biddulph but had taken place at Etruria. This gives a total of 110; as none of those registered were marked as non-residents. Had any such occurred I should have forwarded particulars to the Medical Officer of Health of the District concerned; but I am quite aware that this is not generally done; and I would respectfully submit for the consideration of the County Medical Officer of Health whether he thinks it worth while to devise some plan for securing the inter-communication of such statistics.

The Rate is 18·9. The Rates for the previous 10 years have been given as 16·2, 12·0, 18·5, 14·0, 20·4, 14·2, 15·9, 16·4, 14·4, and 14·3; of which the average is 15·6. 1899 is therefore no less than 3·3 above the average. The average in the whole County for the last 10 years is 18·3. With the exception of 1893 Biddulph has not had so high a death-rate since 1879. (N.B.—The Rates for 1882-3-4-5-6 are not in my possession.) The cause of the high Rate cannot well be attributed to any one group of diseases; the influence of each will be subsequently pointed out in turn.

Infant Mortality.—29 deaths occurred under one year of age, and as there were 210 births the proportion is the same as 138 to 1000. In the previous 10 years the proportionate numbers have been 210, 111, 173, 154, 170, 157, 144, 138, 104, and 140; of which the average is 150. The years 1895-6-7-8-9 have all been below the average, and have also all been below the corresponding numbers for England and Wales. The causes of infant mortality have been so largely discussed during the last year or two in the Reports of many eminent Medical Officers of Health that I will not waste time by repeating here what is now well known. I note in the last Report of the County Medical Officer of Health a copy of a leaflet issued by the Urban District of Handsworth, and presented to every person who registers the birth of a child. I have overlooked this point in the pressure of other work since that Report came into my hands, but it is my intention to advise the Biddulph Council to follow the same course.

Zymotic Death Rate.—This was 3·1, and was caused by 4 deaths from scarlet fever, 1 death from enteric fever, 5 deaths from whooping-cough, and 8 deaths from diarrhœa, total 18. The Rates for the previous 10 years have been given as 3·0, 0·2, 2·3, 0·4, 2·4, 0·5, 3·3, 2·5, 1·3, and 3·6; of which the average is 2·0. Last year the high Rate was caused entirely by measles, which is this year as entirely absent.

Scarlet Fever.—In 1897 11 cases occurred, the last in October; whilst in 1898 only 1 case occurred, in February; so that at the beginning of 1899 the District might certainly be

considered absolutely free from the disease. Yet 110 cases have been since notified, and I have personal knowledge of 10 or 12 other cases which were not notified, besides a strong suspicion, amounting to a moral certainty, of a large number of further cases. Perhaps therefore it may be considered fortunate that only 4 deaths occurred. Two of these occurred in one family among the early cases in March, (girl, 7 years, boy, 5 years), 1 case (malignant) in August, (girl, 2 years), and the last in November, (girl, 4 years).

The distribution of the notified cases throughout the year was as follows :—January, 2, February, 1, March, 9, April, 1, May, 2, June, 8, July, 4, August, 8, September, 5, October, 22, November, 46, and December, 3. The first cases up to the end of March were all close to the southern boundary of the District, and were introduced from Brindley Ford School, (except the 2 fatal cases above mentioned which occurred in Brook Street and whose origin was never certainly made out). In May the infection spread along the western border to Gillow Heath; in June it crossed the valley to Bradley Green, and also spread to Whitemoor Village at the northern boundary; but it was not until October that Biddulph Moor was affected. It has rarely been my good fortune to be able so distinctly as in this case to identify the original source of infection, and to trace the progress of the epidemic, step by step, throughout the District. The notable diminution in December justifies the hope that we may be near the end of our troubles, though of course we cannot be certain. Had the Isolation Hospital been used for the first cases it seems extremely probable that the epidemic might have been entirely avoided, for it is remarkable how little real hold it had got up to September. At this date it is my belief that some un-notified cases occurred and that the patients returned to school in an infectious condition; for this explains the sudden large increase in October and November, and also the further significant fact that, when all the schools in the District were simultaneously closed by order of the Council on November 16th, the blaze died out as suddenly as it had arisen. I must admit that the result was a surprise to me, for I had been keeping the schools under close observation for 3 weeks, and had excluded all suspicious cases, and had entirely failed to find any actual proof that school attendance was dangerous. I certainly held the opinion that infection was being spread by unrecognised cases in the children's homes, and it is the Sanitary Committee and not myself that must have the credit for insisting upon school closure. In this course I cannot help but believe that they were largely influenced, as school managers, by considerations of safeguarding the "grants." But I am the first to admit that the action they took turned out to be of the utmost value.

To my great regret the Isolation Hospital was not used at all. There appears to be a marked antipathy to it on the part of the public generally. I am at a loss to account for this fact as the building is sufficiently substantial, pleasantly and conveniently situated, and I am sure the Council would provide the necessary skilled nursing. Reference to the Report for the Knutsford Urban District in this volume will demonstrate the enormous value to that District of a hospital, hurriedly erected, and much inferior in every way to the Biddulph Hospital. How to educate the public on this subject is a problem which is always present to my mind. I must admit that the Council gave me every support, when once convinced of the serious nature of the epidemic; and a hand-bill was issued in November of which the following is a copy.

URBAN DISTRICT OF BIDDULPH.

NOTIFICATION OF INFECTIOUS DISEASES.

NOTICE IS HEREBY GIVEN that from and after this date, CASES OF INFECTIOUS DISEASES namely, Smallpox, Cholera, Diphtheria, Membranous Croup, Erysipelas, Scarlatina or Scarlet Fever, and the Fevers called Typhus, Typhoid, Enteric, Relapsing, Continued, or Puerperal, occurring in any house within the Urban District of Biddulph, are **REQUIRED TO BE NOTIFIED IMMEDIATELY BY THE HEAD OF THE FAMILY** to which the diseased person belongs, as well as by the Medical Practitioner, if any, attending the patient. Notice may be given in writing or by word of mouth to the Medical Officer of Health for the District, Dr. Garstang, Knutsford, or to the Inspector, Mr. S. Gibson, Public Hall, Biddulph. The penalty for neglect to give immediate notice is a fine not exceeding Forty Shillings.

The Council request the co-operation of the inhabitants of Biddulph in carrying out the provisions of the Infectious Diseases Notification Act 1889. Many cases of Scarlet Fever have been reported during the months of October and November, 1899, but there is reason to believe that many more have occurred which have not been reported; these unreported cases are a serious danger to the community, and prevent the efforts of the Sanitary Officers to suppress the disease being successful. It is also requested that cases of **MEASLES AND WHOOPING-COUGH** be notified in exactly the same way.

EXPOSURE OF DISEASED PERSONS.

It is known that many children suffering from Infectious Diseases have been allowed to be in the streets whilst in an Infectious condition. **THE COUNCIL GIVE WARNING THAT, AFTER THIS DATE, THEY WILL STRICTLY ENFORCE SECTION 126 OF THE PUBLIC HEALTH ACT 1875**, which prohibits, under a penalty of Five Pounds, any person suffering from an Infectious Disease being exposed "in any street, public place, shop, inn, or public conveyance."

By order,

The Public Hall, Biddulph,
27th November, 1899.

A. STEELE SHELDON,
Clerk to the Council.

This notice has been complied with in the few cases which have since arisen.

Diphtheria.—No cases have occurred.

Whooping Cough.—There is no record of the number of cases occurring; but 5 deaths were registered during the last seven weeks of the year. Two were under 1 year of age, 2 between 1 and 2 years, and 1 at 3 years. In accordance with the handbill above quoted a few cases were notified to the Inspector. We have however no information of any widespread epidemic.

Enteric Fever.—Two cases occurred in one house in April, girls aged 20 and 16 years respectively. The former died the day after Notification, the latter was removed to the Infectious Hospital on April 29th, and remained there until July 26th at a very considerable cost to the District. She had a very serious relapse, and also appeared to be phthisical. She was under the care of Dr. Craig and was ultimately discharged cured. A case occurred at Gillow Heath in September, and another just a month later in the person of a neighbour who had been helping to nurse the former. Another case was notified in October, but there was considerable doubt as to the diagnosis, and probably this was not a genuine case.

I am very pleased to learn that, in future, enteric fever will be accepted for bacteriological examination at Mason College, Birmingham. The Local Authorities in the County are greatly indebted to the County Medical Officer of Health and to the County Council for arranging to make these most important examinations possible, and at no cost beyond the provision of the requisite apparatus for taking and forwarding samples.

Insanitary conditions were found on the premises where the above cases occurred. The drainage of the houses at Gillow Heath, like that of all the houses in that hamlet, was most unsatisfactory. The Council recognises the necessity for a public sewer, but questions of sewage treatment are still far from finally settled, and the Council is allowing this matter to stand over until it has solved the more pressing problem of the erection of new sewage-disposal works for Bradley Green.

Diarrhœa.—Nine deaths were registered from this disease; 1 in a child, under 2 years, in January; 1 in a man, 72 years, in May; 1 in a man, 72 years, and 1 in a woman, 63 years, in December; and the remaining 5, all under 1 year of age, in July, August, and September. It is a question which I am unable to settle whether the 5 last-mentioned cases ought not to be the only ones counted as true “epidemic” or “zymotic” diarrhœa. If so the mortality was not excessive. For reasons already given in a previous paragraph I do not propose to say anything on this occasion about the causes of diarrhœa. (See Middlewich Report).

Erysipelas.—Only 3 cases of this disease were notified; viz.:

M., 66 years, in October; F., 68 years, in November; and M., 30 years, in October. These cases were not in any way connected, and I must confess again to entertaining grave doubt whether they were cases of true infectious disease at all. The 2 first named proved fatal, which is a very abnormal proportion, but both were persons in advanced years, and may have died from "senile decay" quite as much as from erysipelas.

Puerperal Fever.—No cases of this disease were notified; but 1 death was registered in January from "parturition, septicæmia," and I have entered this in column 9 in Table A.

Influenza.—The 3 deaths attributed to this disease occurred as follows:—March, F., 50, complicated with heart disease; May, F., 74, complicated with bronchitis; and November, F., 19, complicated with convulsions.

Phthisis.—Six deaths occurred from this disease; giving a Rate of 1.03; viz.: F. 25, F. 23, M. 38, F. 27, F. 22, F. 25. The preponderance of females is remarkable; and every life was cut short during what ought to have been its most active and valuable period. Disinfection was undertaken as usual after these deaths. The present state of knowledge as to the propagation of tubercle leads to a hope that in course of reasonable time this too-common disease may become as rare as are small-pox, cholera, and typhus fever to-day.

Zymotic Disease Prevention.—This may be the best place to allude to the death of Mr. Isaac Worthington, the late Inspector and Surveyor, which occurred on the 18th of March, at the age of 61 years, from pneumonia. We all liked him and highly appreciated him; but without meaning any disrespect to his memory it must be evident that the District has largely benefitted, at least in the circumstances of the severe scarlet fever epidemic, by the appointment of a younger and more active man. Other diseases gave us comparatively no trouble, but the occurrence of 110 cases of scarlet fever (68 of them within a period of two months) taxed even the new Inspector's energies to the utmost. Mr. S. Gibson was appointed on April 18th. I have thus had the great advantage of being able to instruct him, in the matters with which I am more particularly concerned, as to the best manner of carrying out his duties. In connection with his reappointment at the end of the year, the Local Government Board has written to the Clerk (January 11th, 1900) requiring me to include in my Annual Report a statement as to the way in which he has performed his duties. To save time I sent up a special Report on January 13th to the effect that I was amply satisfied with Mr. Gibson's courtesy, ability, and energy in all matters which he had had to undertake in my department.

“Prevention” of infectious disease has been carried out on the usual lines. Mr. Gibson has devoted an immense amount of time and trouble to personally visiting and supervising all notified cases, and some few others of which we were aware.

Isolation and Disinfection.—As has been already stated, the Hospital was only used for 1 case of enteric fever. In all other cases of infectious disease the isolation secured was only such as might be expected when carried out by members of the working classes in dwellings which were only too frequently short of accommodation for such a purpose. Similarly disinfection, in the absence of any proper apparatus for dealing with bedding, clothing, etc., was limited practically to fumigation of rooms containing their usual furniture.

Negotiations with the neighbouring Borough of Congleton for the establishment of a Joint Isolation Hospital were continued in the early part of the year. The Council also met the County Medical Officer of Health at its own Hospital on May 4th. The joint scheme appears to have fallen through, not from any fault of this District, but because of the difficulty, amounting almost to impossibility, of inducing Congleton to move, seeing that that Borough by reason of its population exceeding 10,000 (Isolation Hospitals Act, 1893, Sec. 2), is exempt from compulsion. Neither has any action followed the visit of Dr. Reid in the direction of enlarging and improving the existing Hospital, which would entail a greater expense than a small District like this is willing to face. So the position is one of simple “drifting,” and things will probably remain as they are until either the District suffers from a severe and fatal epidemic, or until the County Council forms a combined Hospital District for this part of North Staffordshire under the Act referred to.

Vaccination.—By the courtesy of Mr. Shaw, the Clerk to the Guardians of the Leek Union, and Mr. Nixon, the Vaccination Officer, I am able to give the figures for the first half of 1899; (as it happens that Biddulph has a separate Vaccination Officer, and a separate Return). Births, 98; vaccinated, 55; died, 10; removed, 2; and postponed, 31.

Vaccination is under the control of Boards of Guardians. A Medical Officer of Health has no right of access to the figures.

Insanitary Dwellings and Overcrowding.—There are no insanitary dwellings in the sense in which such exist in large towns; though many are defective in drainage and sanitary conveniences. One case of serious overcrowding was discovered during the visits paid to infectious cases, and notice was served to abate the nuisance.

Excrement and Refuse Disposal.—During the whole of the past year scavenging has continued to be carried out by the

men employed directly by the Council under the supervision of the Surveyor ; and the results have continued to be satisfactory. The "Congleton Peat-pail" (see my last Annual Report p. 78) continues to be much appreciated, and the number in use is being gradually increased as opportunity offers.

To facilitate the work of general scavenging the Inspector has divided the District into five parts ; each part being cleared systematically once every week. The arrangement is working well ; at all events no complaints are coming in.

The Peat-pail System has received considerable extension since May, 1899. 140 pails have been supplied by the Council this year, bringing the total number up to 171 ; besides 51 which had been purchased by property owners during the time that the Council's arrangements were being matured ; making a total of 222. This increase is fair evidence of the recognised superiority of the Peat-pail over all other older methods of conservancy.

Sewage Disposal.—The Sanitary Committee has had this matter constantly before it. Local Authorities may fairly ask to be allowed plenty of time for consideration before spending money on sewage disposal works ; but I am glad to be able to report that definite progress has at last been made. Members of the Committee have personally visited and examined the systems in operation in several neighbouring Districts, where modern theories are being put into practice. The first result was a decision to adopt the bacterial system ; and after full consideration it was further resolved to employ similar arrangements to those which have proved so successful at Hale (near Altrincham). For all details see my Reports for the Bucklow Rural District for last year and for this year. This decision has been unanimously approved and confirmed by the Council ; and the Surveyor is at present engaged in the preparation of plans and estimate for carrying out the necessary works. Although this may not seem a great deal to have done in a whole year, it must be noted that the period of indecision and consideration is now over, and there is no reason why progress in the future should not be steady and comparatively rapid.

Water Supply.—The scheme referred to last year for supplying Biddulph Moor (an area lying high on the eastern border of the District) is now being carried out. Should there be any surplus water, arrangements are being made to add it when necessary to the main supply of the District. The work was begun in October last and is expected to be completed about June next. The Engineer is Mr. C. Russell Hall, of Congleton ; and the Contractor Mr. J. Nevill, of Stafford. The contract price is £3132 10s. 0d.

Slaughter-houses and Bakehouses.—These have been inspected, and found generally satisfactory.

Dairies and Cowsheds.—The Council has recently instructed the Medical Officer of Health to make a systematic examination of, and report upon, the whole of the cowsheds in the District. The work will be undertaken as soon as the winter is over, and the weather more suitable. As the County Council recently addressed special enquiries to the District Council on this matter, as well as on the question of new sewage works, I trust that this Report may be found satisfactory as indicating that the District Council is quite willing to carry out its duties, and that its officers will not fail either in zeal or ability.

Having now followed the arrangement of the Report of the County Medical Officer of Health as closely as possible, there are one or two minor matters which may be briefly referred to.

Comparative Position.—In Supplementary Table IV., compiled from the Tables in the County Annual Report, may be seen the position of the District among the 38 Urban Districts in the County in 1898. The general death-rate was the 8th on the list, beginning with the lowest, and it was the same in 1897. This marks a very satisfactory position.

Illegitimate Births.—Supplementary Table III. shows these to have been 16 in number, or twice as many as in 1897; and equal to 7·6 per cent. of all births. As far as I can ascertain, 2 of these children died during the year; being 12·5 per cent. of the illegitimate births; while the percentage among the legitimate children was 14·0

Uncertified Deaths.—Three were registered viz.: M., 67 years, heart disease; F., 87 years, pulmonary congestion; and M., 7 months, whooping-cough and cerebral hæmorrhage.

Inquests.—These were held in 7 cases; viz.: M., 23 years, injuries from fall; F., 77 years, broken thigh from fall; F., 69 years, accidental hæmorrhage; M., 5 years, accidentally drowned; M., 8 years, accidentally burnt by lime; M., 19 years, run over by railway waggon; F., 6 years, burns.

Alcoholism.—This does not appear as a cause of death.

Cancer.—This occurs 4 times; all females, at ages 58, 66, 72, and 79 years. Rate 0·69.

It would be ungracious to close this Report without alluding to the great loss which the Council has sustained at the end of the year by the promotion of their late Clerk, Mr. A. Steele

Sheldon, to a more important position at Burnley. Personally I feel his loss very much, as he was frequently of great service to me in supporting my suggestions to the Council; he was always a most pleasant colleague to work with; and could be implicitly relied upon to have his work complete and perfect.

Inspector's Report.—Mr. Gibson does not wish on this occasion to append an independent report. I therefore acknowledge his assistance in providing me with the information given as to the number of Peat-pails in use; the Water Supply, etc.

On November 17th when all the schools had been ordered to close on account of scarlet fever, he obtained for me the following information which is worth recording :—

SCHOOL.	No. on Books.	No. Absent.
Knypersley Mixed	115	42
„ Infant	83	26
Primitive Methodist Mixed ...	224	68
„ Infant	157	67
Wesleyan Mixed	106	43
„ Infant	70	35
Biddulph	173	93
Biddulph Moor Mixed	190	41
„ Infant	93	28
	1211	443

Mr. Gibson also reports the following particulars on the special form provided by the County Medical Officer of Health:

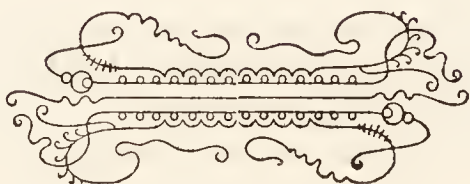
	Inspections made.	Notices by Authority.	Nuisances abated.
Dwelling Houses; structural defects...	5	5	5
„ overcrowding...	1	1	1
Bakehouses ...	32	—	—
Slaughter-houses ...	16	1	1
Ashpits, &c. ...	30	30	28
Drains, defective traps ...	19	19	18
Pigsties ...	1	1	1
Total ...	104	57	54

Also five houses disinfected after infectious disease, and five lots of infected bedding stoved or destroyed.

T. W. H. GARSTANG,

M.R.C.S., D.P.H.

January, 1900.



(A) Table of **DEATHS** during the Year 1899, in the Biddulph Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)	
Whole District	109	29	14	5	10	25	26	{ Under 5 ... 5 upwards ...
TOTALS								

The subjoined numbers have also to be taken into

Deaths occurring outside the district among persons belonging thereto.	I	I	...	...	...	...	{ Under 5 ... 5 upwards. ...
Deaths occurring within the district among persons not belonging thereto.	... ..	... ..	... ..	... ..	... ..	... ..	{ Under 5 ... 5 upwards. ...

(B) Table of **POPULATION, BIRTHS, AND OF NEW CASES OF**
of Health during the Year 1899, in the Biddulph Urban District;

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Last Census. (b)	Estimated to middle of 1899. (c)	Registered Births. (d)		Small-pox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
Whole District	5290	5820	210	{ Under 5. 5 upwds.	... ...	41 69	... ...	... ...
TOTALS								

State here whether "Notification of Infectious Disease" is compulsory in the District,—Yes.

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																					
Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever	Phthisis.	Bronchitis, Pneu- monia, & Pleurisy	Heart Disease.	Influenza.	Injuries.	All other Diseases.	Total.
1	2	3	4	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	10	11	12	13	14	15	16	17	18	19	20	21	22
...	2	...	...	...	...	...	...	...	...	...	...	5	6	...	...	3	1	...	...	26	43
...	2	...	...	...	1	...	...	1	...	2	...	...	3	1	6	14	7	3	6	20	66

account in judging of the above records of mortality.

...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer
classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.									Number of such Cases re- moved from their Homes in the several Localities for Treatment in Isolation Hos- pital.
FEVERS.					Cholera.	Erysipelas.			Enteric or Typhoid Fever. 6
Typhus. 5	Enteric or Typhoid. 6	Continued 7	Relapsing 8	Puerperal. 9	10	11	12	13	
...	...	...	...	...	...	...	...	...	...
...	5	...	...	...	...	3	...	...	...

SUPPLEMENTARY TABLE I.

Shewing Births, Birth-rate, Deaths, and General and Zymotic Death-rates, and compared with average of last 10 years ; and Deaths in Old Age and Infancy, and percentages of these to Total Deaths ; for the Year 1899.

TOTAL,			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
Births.	Deaths	Zymotic Deaths.	Average.	1899.	General.		Zymotic.		At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
					Average.	1899.	Average.	1899.				
210	110	18	34.4	36.1	15.6	18.9	2.0	3.1	26	29	24	26

SUPPLEMENTARY TABLE II.

Shewing Deaths, Death-rates, Deaths from Special Diseases, and Old Age and Infantile Deaths, in the Four Quarters of the Year, 1899.

QUARTER ENDING.		Total Deaths.		DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.		Scarlet Fever.	Enteric Fever.	Whooping Cough.	Diarrhoea.	ZYMOTIC DEATHS.		Phthisis.
		Rate.	At 65 Years and up-wards,	Under One Year.	At 65 Years and up-wards.	Under One Year.						Total.	Rate.	
March	31	14	9.9	2	1	14	7	2	—	—	1	3	2.1	2
June	30	32	22.5	9	10	28	31	—	1	—	1	2	1.4	1
Sept.	30	27	18.4	6	9	22	33	1	—	—	5	6	4.1	1
Dec.	31	37	25.2	9	9	24	24	1	—	5	1	7	4.8	1

SUPPLEMENTARY TABLE III.—BIRTHS.

	M.	F.	Total.	Rate.	Of which Ille- gitimate.		
					M.	F.	Total.
1st Quarter ...	25	20	45	32·0	1	1	2
2nd „ ...	29	19	48	33·9	1	1	2
3rd „ ...	33	29	62	42·3	3	3	6
4th „ ...	28	27	55	37·5	1	5	6
	115	95	210	36·1	6	10	16

SUPPLEMENTARY TABLE IV.

Shewing position of Biddulph in the County in 1898, compared with 37 other Urban Districts.

STAFFORDSHIRE.	Best of 38 Urban Districts	Worst of 38 Urban Districts	Bid- dolph Figures.	Place of Bid- dolph in the List.
Birth Rate	47·1	20·9	35·7	18
Death Rate	10·0	27·0	14·3	8
Zymotic Death Rate	0·2	6·4	3·6	23
Infantile Mortality	74	274	140	11

Knutsford Urban District.

ANNUAL REPORT OF MEDICAL OFFICER OF HEALTH FOR 1899.

Population at Census, 1891, 4,663.

(4,266 exclusive of Workhouse and Gaol).

Estimated Population in middle of 1899, 5,448.

(4,900 exclusive of Workhouse and Gaol).

Area in Acres 1,760.

Birth Rate per 1,000 living, 21·0.

Death Rate per 1,000 living, 17·3.

Death Rate from Seven Principal Zymotic Diseases, 0·6.

Deaths under one year in proportion to 1,000 Births, 136.

Note.—The matters dealt with on pages 5 to 13 are to be read as a part of this Report.

Population.—The Urban District, exclusive of Public Institutions, is believed to have a population of 4900 in 1899. By the courtesy of the Governor of the Gaol and the Master of the Workhouse I am able to give the *average* number of inmates in those institutions, viz.: Gaol 278, Workhouse 270. Grand Total 5448. Three births are reported in the Gaol during 1899, and 4 deaths. The whole of these were strangers, and are excluded from calculations of Rates.

Tables.—It has not been found possible to ascertain with any certainty any of the Rates, except the general death-rate, for the years previous to 1895. The averages shown in the Tables are therefore only for the last 4 years, except the general death-rate, which is given for 10 years, and which has been corrected for the earlier years as far as possible, to exclude the influence of the alien population of the Workhouse and Gaol.

Births.—The Births registered are 103, compared with 126 in 1898. The birth-rate is 21·0.

The birth-rates for the previous 4 years have been 32·6, 26·0, 30·1, and 26·2, of which the average is 28·7; and so 1899 appears with much the lowest Rate on record.

Deaths.—The Deaths registered are 84, exactly the same number as in 1898, but as the population has increased the Rate is now 17·3 instead of 17·5. The Rates for the previous 10 years 1889-98 are as follows :—18·9, 12·4, 13·8, 12·0, 15·0, 13·8, 14·7, 16·5, 16·6, and 17·5. The average of these is 15·1. Neglecting 1889, the correctness of whose Rate is open to doubt, it would thus appear that the last 4 years have shown a persistent increase above the average. I am not prepared to offer any explanation of this fact. The populations of, and the deaths occurring in, the public Institutions have been carefully eliminated, and the figures refer to the true residential population of the Urban District. The birth-rate is low, and the death-rate cannot be explained by the occurrence of a large number of deaths in infancy. Reference to the various Tables rather shows that the majority of deaths (63 per cent.) occur after the age of 25 years; and 60 per cent. of them are found in the “miscellaneous” column of Table A.

Comparative Position.—(Supplementary Table IV.) In comparison with the other Urban Districts in the County for 1898, the District certainly comes out badly, being below the middle in each one of the 4 lists selected, and nearly at the bottom in the general death-rate and infant mortality figures.

Infant Mortality.—The occurrence of 14 deaths under 1 year of age, where the births have been 103, is in the proportion of 136 to 1000. This figure therefore is caused quite as much by the small number of births as by the number of infantile deaths. The 14 are classified as follows :—premature 3, debility 2, convulsions 3, respiratory diseases 4, whooping-cough 1, and diarrhoea 1. There is nothing either exceptional or alarming about these figures when examined in detail. The corresponding numbers for the past 4 years were 92, 165, 171, and 198, of which the average is 151, so that this year we are at least below the average, which is itself below the average for England and Wales; that being for the same 4 years 169.

Illegitimate Infants.—The number born was 5; or 4·8 per cent. of births. I am unable to ascertain from the returns available whether any of these subsequently died. I will arrange with the Registrar to have the particulars noted in future.

Still-born Children.—See Bucklow Report.

Mortality among Old People.—This was 25 per cent., which is slightly higher than the average in the Urban Districts in 1898.

Uncertified Deaths.—Three were recorded; viz.: January 27th, M. 59 years, heart disease; December 12th, F. 48 years, phthisis; and December 19th, F. 41 years, epilepsy.

Coroners' Inquests.—These numbered 3; viz.: January 6th, M. 2 months, found dead in bed; July 7th, F. 72 years, compression of brain; July 10th, M. 47 years, peritonitis. The last named death occurred in the Workhouse.

Zymotic Diseases.—The only deaths registered were 2 from whooping-cough, and 1 from diarrhœa. This gives a Rate of 0·6. Previous Rates have been, 0·4, 1·4, 1·9, 2·1, of which the average is 1·4. The average for England and Wales for the same years was 2·2.

Vaccination.—See Bucklow Report.

Measles.—A few cases occurred during the scarlet fever epidemic. They were principally cases not medically attended, so that in spite of my examination of such cases as I was aware of, there is just a possibility that some of them may have been scarlet fever. No deaths occurred from measles.

Scarlet Fever.—62 cases were notified. The first case was dated May 17th, and there had been no case in the town since November, 1897. A second case was notified on May 18th, and 5 cases (3 in one house) on May 19th. On May 20th an exhaustive enquiry was conducted into each of these cases; from which I ascertained that other suspicious cases had occurred earlier in the month, and following up these traces, I succeeded in finding 2 children, in an active condition of peeling, who had had no medical attendance, but who were stated by their mother to have had “a little sore throat” a fortnight previously, for which they had been kept at home a few days, but were now again attending school. No proof was ever obtained as to their source of infection; but I am strongly of opinion that the infection was introduced into the town at the May-Day Festival. Among the scholars attending this (S. Cross) School, and their neighbours, the disease spread with some rapidity, and by the end of May 17 cases had been notified. This was followed by 8 cases in June, 13 in July, 5 in August, 4 in September, 9 in October, 5 in November, and 1 in December. During the later months the disease was universally distributed. No deaths occurred, which obviates the necessity for any further comment in this paragraph. (See *postea*; Isolation Hospital). Besides the cases officially notified several others undoubtedly occurred in the town; whilst in July, 5 cases occurred at Ashley, traced to infection in Knutsford; 2 were alleged to have occurred in Manchester; in August a family visited Bromlow near Minsterley, Salop, and there developed 5 cases; whilst in October a teacher at the S. Cross Schools, residing at Stretford, was laid up.

Return Cases.—No cases occurred in houses from which cases had been removed to Hospital, but there were several instances where further cases occurred on account of the first one *not* having been removed.

Diphtheria.—Only 1 case was notified. This was an Irish labourer who was admitted to the Workhouse from High Legh in September, and isolated in the Fever Hospital there. For reasons given in the Bucklow Report in connection with the outbreak of which this case was a part, I have considerable doubt as to the genuineness of the disease.

Whooping-cough.—In May a severe epidemic was experienced. Some 30 houses, mainly lying west of King Street, were infected, and scattered cases continued to occur throughout the rest of the year. In June the Council issued a handbill of which the following is a copy :—

Knutsford Urban District Council.

NOTICE.

WHEREAS there are at present a number of cases of

SCARLET FEVER

(chiefly in Cross Town), and it is feared that other cases will follow,

THIS IS TO GIVE NOTICE

to Parents that Children who have recently had Scarlet Fever are not to be allowed to play in the Roads, or in any way mingle with other Children in any public place whatever, until certified to be free from infection by a Doctor; and it is the determination of the Health Committee to advise the Council to

PROSECUTE

all Persons found disobeying this Notice, after this date. (Section 126, Public Health Act, 1875).

By Order of the Health Committee,

T. W. IL. GARSTANG, D.P.H.,

June 3rd, 1899.

Medical Officer of Health.

The above Caution applies also to ALL Infectious Diseases, whenever prevalent; (the most common being SCARLET FEVER, MEASLES, and WHOOPING COUGH.)

Unfortunately however the Council did not appoint any special Officer to enforce this Notice; and the Medical Officer of Health and Inspector had far too much other work on hand to be able to attend to it. As far as whooping-cough was concerned, it was certainly a dead letter. A case in particular attracted my notice, which I may mention as an example of my meaning. On December 9th I saw a large group of women and children standing in the road at Richmond Hill. One of the children had a violent attack of coughing, and whooping, ending with vomiting; but neither its mother, nor the mothers of the other children, took the slightest notice. In face of such apathy, which would be absolutely criminal if it were not due to sheer ignorance, the attempt to control an epidemic of whooping-cough becomes simply hopeless.

Two deaths were attributed to this disease, viz.: July 21st, M. 6 months, and December 12th, F. 1 year. Rate 0·4.

Enteric Fever.—This is a disease from which the District has been absolutely free for several years, certainly since March, 1895; with the exception of an imported case in August, 1898, which was thoroughly isolated; and a doubtful case in December, 1898, not confirmed bacteriologically. I have therefore been somewhat uneasy at finding 5 cases notified during this year. One of them in October was twice examined bacteriologically with negative results; in another case in December the Notification was withdrawn; but the other 3 were bacteriologically confirmed. One occurred in May, M. 15 years, another in August, M. 65 years, and the third in December, F. 4 years. The closest investigation failed to discover any connection between them; and equally failed to discover the causation of any of them. There were no deaths.

Puerperal Fever.—One case was notified on July 4th, and proved fatal on July 7th; on the same day there was also a fatal case in the Rural District. Both cases had been attended by the same midwife, a thoroughly conscientious and competent person of her class; but there is no doubt that she neglected from ignorance the early symptoms in the former case, and also carried the infection from it to the latter. I reported strongly to both Councils at the time, but as long as midwives exist and are employed to take sole charge of labour cases, such deplorable “accidents” must occasionally occur.

Diarrhœa.—Except for 2 deaths which occurred in the Workhouse in elderly people, and are excluded from these returns, only 1 death was registered in the District, and that was a child 4 months of age in August. Rate, 0·2.

Erysipelas.—Two cases only were notified; in April and May; and they were of no importance.

Influenza.—One death, complicated with heart disease, occurred in March, F. 66 years; (besides 2 in the Workhouse, excluded.) Rate, 0·2.

Phthisis.—Four deaths were registered in the District, besides 1 in the Workhouse, included; and excluding 5 in the Workhouse, and 1 in the Gaol; equal to a Rate of 1·0. They were February, M. 36 years, March, F. 24 years, July, M. 47 years, August, M. 29 years, and December, F. 48 years.

Bronchitis, etc.—16 deaths were registered in the District, besides 1 in the Workhouse included; and excluding 3 in the Workhouse, and 1 in the Gaol; equal to a Rate of 3·2.

Heart Disease.—Eight deaths were registered in the District,

besides 1 in the Workhouse included; and excluding 4 in the Workhouse; equal to a Rate of 1·9.

Injuries.—None.

Alcoholism.—None.

Cancer.—This appears 4 times, all Females, at ages 2, 40, 62, and 64 years respectively.

Notifications.—The number received during the year has been :—puerperal fever, 1; diphtheria, 1; erysipelas, 2; enteric fever, 4; and scarlet fever, 62; total 70. In 1895 there were 25; in 1896, 12; in 1897, 8; and in 1898, 6. 1899 is thus much the worst year since the District came into existence, but this is entirely due to the scarlet fever epidemic, and if that be neglected the year is otherwise no worse than its predecessors.

Isolation Hospital.—In the hands of the Bucklow Joint Hospital Board the District began the year in its usual condition of being entirely without hospital accommodation. When the scarlet fever epidemic occurred in May and June, the Council decided to erect a temporary Hospital. Some time was lost in the usual unavailing search for a site; and that a site was eventually obtained was owing entirely to the public spirit and kindness of Col. Langford-Brooke, who permitted the land he had sold to the Council for a cemetery to be temporarily used for this purpose. An apparent decrease of cases early in June also led to a postponement of the final plunge; but a marked increase at the end of June made it necessary to proceed with the work. A wooden building was erected 30 feet by 15 feet, divided into 2 wards, communicating with each other, and having 1 external door protected by a porch. A separate smaller building was purchased ready-made, and fitted up as a kitchen with a cooking-stove.

The site was an excellent one in every respect, situated on Tabley Hill, in the Township of Tabley Superior, in the Bucklow Rural District, the highest ground in the neighbourhood, commanding pleasing views; the soil light and porous, with a natural slight dip to the east; $1\frac{1}{4}$ miles from Knutsford; and with very small population in the neighbourhood. The buildings were pitched with an almost south aspect. Each ward of the wooden building had a large window, facing south; a small inlet ventilator on the opposite side, and a louvred outlet in the roof. The ventilation was always sufficient; sometimes too free. No apparatus for heating was provided; as the length of the occupation was not foreseen. When it became necessary to use heat, oil stoves were procured, and by a generous consumption of oil, never failed, even in the winter to keep up a sufficient temperature. But the site was not occupied without protest and opposition. The Honourable Lady Leighton on behalf of

herself and her tenants on the Tabley Estate, sent in a written protest, threatening to hold the Council responsible for any damage done. I forget which Council it was that received this document, and whether I should record it here or under the Bucklow Report. The Hospital was dependent for water supply on a road-side public well about 400 yards further down the Tabley Hill road. Lady Leighton had some few years before placed an ornamental gate at the opening to this well; to protect the water from casual pollution; she now early in August, locked this gate, supplying keys to her tenants, but forbidding them to allow the Hospital servants to use them. This led to communications between the two Councils, the Knutsford Council as a tenant of property, calling upon the Bucklow Council as the Sanitary Authority in the Township of Tabley Superior, to protect the rights of the public. The Bucklow Council attempted negotiations, which failed, but which occupied 3 meetings; and it was not until September 6th that the Council ordered the lock to be forcibly removed, if not done in 7 days voluntarily. Meanwhile on September 5th the Knutsford Council had already resolved on a similar course of action, if the Rural Council made any further default. However before these days of grace expired, some person unknown broke the lock off on September 9th, and the hollowness of the pretensions and threats which had been made use of by the claimant to ownership was made ludicrously manifest, as no attempt was made to replace the lock. Thereafter this water, which was of excellent quality, was available for drinking and cooking purposes, but where larger quantities were wanted, as for washing and cleaning, it was found necessary to cart it up from Knutsford.

The question of drainage was another difficulty; but was solved in this manner. All liquid refuse was thrown abroad in the field, at various points, at a distance from the Hospital; and the solid matters were collected in "peat-pails" and regularly buried in distant parts of the field.

The Hospital was complete and received its first patient on July 22nd. As the cases were apparently likely to be numerous, the canvas marquee belonging to the Rural District Council was also borrowed and erected, and an ordinary circular bell-tent was given by the Medical Officer of Health. The former was found quite suitable for convalescents as long as the weather was warm; and the latter was useful as a store. For nearly 3 months we were favoured with fine weather, but storms and gales occurred later on, which rendered the marquee unsafe; in fact it was partially blown down three times, and required extreme vigilance and care to keep it standing. We were fortunate in getting permission to remove all the cases (save 1, a baby) which occurred after July 18th (these were only 8 in

number) up to September 2nd; when the epidemic appeared to be practically at an end; but from September 26th to October 16th occurred a fresh series of 10 cases, 9 of which were removed to Hospital. It therefore became necessary at the end of September to erect an additional ward, and another wooden building was put up, 20 feet by 15 feet; and the canvas erections were removed. In consequence of the prolonged occupation it was also found necessary to provide a small shed with a washing boiler. The site of these buildings was surrounded by an iron fence, the hurdles being very kindly lent by the May-Day Committee. For a considerable time this was the only enclosure in the middle of the large field of which a portion was to form the cemetery site, and this made an excellent playground for the children when convalescent. Towards the end of the year, the fencing out of the cemetery site itself, with unclimbable iron hurdles, was carried out. This lessened the play-ground, but it was still upwards of 4 acres in extent; and it was less needed, as the number of cases diminished, and the weather became unfavourable.

The way in which the Hospital was worked, was this: the Medical Officer of Health was formally appointed General Medical Superintendent: Mr. Downes, though not formally appointed to any post, superintended the erection of the buildings, saw to the water supply, found some of the servants, and paid all wages except the Nurses'. A qualified Nurse from a Manchester Institution was always resident, whilst from August 11th to 18th, and again from October 24th to November 25th there were two Nurses; and there was a young woman, also resident, to act as cook, and ward-maid. A man was employed in the day-time, but did not remain at night. His duties were to fetch water, to do the outside work at the Hospital itself, such as disposing of the refuse, to convey orders to the tradesmen in the Town, and to carry up such articles as were not sent by the tradesmen's own carts.

Changes took place from time to time, alike among nurses, maids, and attendants; but there is no need to go into these in detail.

This Report nominally closes with the end of 1899, but writing as I do in 1900, it seems a pity to leave the account incomplete, for a merely technical reason, when it is just as easy for me to state that the last patients were discharged on January 27th; and that up to February 3rd, a period of a little over 6 months, the capital expenditure had been £230 19s. 11½d.; and the maintenance has cost £164 6s. 9d. The former item is probably complete, but the latter will have to be increased by the amount of bills not yet presented, which will include at least one large one, viz.: for the services of the Nurses during the latter half of the time.

A remarkable feature, and one somewhat unexpected, was the readiness of the majority of parents to permit the removal of their children. Thus, as has already been said, 8 were admitted out of 9 which occurred between July 18th and September 2nd ; and 9 were admitted out of 10 which occurred between September 26th and October 16th. The case which occurred in December was also admitted ; but in the interval 4 cases had been notified in a large house, from which removal was not necessary ; 1 case was too young, and too ill to be removed ; and 2 other cases occurred, in which the parents obstinately refused to avail themselves of the advantages offered, (making 4 in all during the whole 6 months, in which this happened). These persons were warned of the responsibility they undertook, so emphatically that they undoubtedly exercised unusual care and no subsequent cases could be attributed to them.

Several of the cases were severe ones, and several suffered from complications ; it is the more satisfactory to be able to record that every case was discharged cured, and in the most robust health. The children themselves were in every instance most reluctant to leave, and their parents were equally delighted with the condition in which they returned home. I am distinctly of opinion that the Hospital was markedly instrumental in checking the epidemic. This I believe was effectually done by September ; the occurrence of a fresh group of cases later on was carefully investigated, and I came to the conclusion that they could not be attributed to any of the earlier cases, and therefore must be considered due to a fresh infection. Assuming this to have been the case, this second epidemic had disappeared by the end of the year. Although the Hospital has been somewhat costly, it is my opinion, in which I know that the Health Committee cordially agrees, that the money was well spent, and and that the town obtained ample value for it.

During the time that the Hospital was open, 6 cases were admitted from the Bucklow Rural District, viz. : 1 from High Legh, 1 from Hale, 1 from Tabley Superior (one of Lady Leighton's tenants !), 2 from Mobberley, and 1 from Tatton. These cases all did equally well, and were discharged in an equally satisfactory condition, except 1 girl who appeared to be also phthisical, and who was discharged with a suppurating cervical gland.

With regard to medical attendance the Health Committee decided that each patient might be attended by the family medical man, if the parents so wished ; but it was also arranged that free medical attendance should be available for such as were too poor, or were indifferent, or came from a long distance. The Medical Superintendent was authorised to look after all such cases. The result was that of the Knutsford patients, Dr.

Appleby attended 10, Dr. Fennell 2, Dr. Smith 2, and the Medical Superintendent 4. Of the Bucklow cases Dr. Appleby had 1, and the Medical Superintendent 5. The plan worked well, and no friction occurred at all, so far as I know.

It only remains to add that though considerable pressure was brought to bear, from the quarter already indicated, to secure a premature closing and removal of the Hospital from the Tabley Hill site, culminating in a distinct order from the vendor of the site (without whose permission we had no power to use the land for this purpose) on October 11th not to admit any further cases after that date, we fortunately only needed to admit 2 later cases to complete the whole of our work; and by the exercise of a little diplomacy, this was managed in spite of the prohibition. The Council and the public alike owe a large debt of gratitude to Colonel Langford-Brooke for the facilities he generously afforded; setting an example to neighbouring landowners which few if any have been found during the past 2 years willing to equal.

A new site has been taken on lease for 2 years in Mobberley (Bucklow Rural District) to which it is intended to transfer the Hospital without delay; in fact it will probably be accomplished before these lines appear in print. The buildings will be re-erected in a more substantial fashion, being set upon brick foundations; a fireplace with a brick chimney will be added to each ward; and an additional small room provided as bedroom for the Nurse. The removal and additions will probably add £100 or more to the capital account; but on the other hand negotiations are in progress, and seem likely to be successful, whereby the Bucklow Rural and this Council will become joint owners, the former body repaying to the latter one-half the capital outlay; the Hospital being managed by a joint Committee representing both bodies, and further expenses of maintenance being divided according to the number of patients admitted, and the length of time they respectively stay, from each District. The portion of the Bucklow District served will be limited to that which lies south of the river Bollin; this being a condition made by the lessor.

Systematic Inspections.—The District being a small one, and having been subjected to a house-to-house visitation in the previous year, as regards more than one half of the population, the condition of the various premises is well known, and systematic inspection during the current year has been maintained with efficiency, and without difficulty.

Ashpits, etc.—In addition to the large number of objectionable privy-middens there are also among the better class houses many ashpits of too great a capacity. These are only emptied occasionally; and therefore much matter is stored up close to

the houses which would be better got rid of at shorter intervals.

Refuse Removal.—This is carried out for the whole District by a Contractor. The cost is about £250 per annum. The peat-pails (for full description see Biddulph Report for 1898, p. 78) continue to be favourably regarded, and the number in use has now increased to about 53, of which 27 have been added during 1899.

Sewage Works.—In my last Report, pp. 102 and 103, are given in full the details of observations I made during the five months, March to July, at the Sewage Works. The then-existing “Roads and Sanitary Committee,” for some reason which I never could understand, was markedly hostile to my proceedings; and, as briefly intimated, I discontinued my work for the simple purpose of avoiding friction. Moreover, as long as that Committee existed, and was supported by the Council, it was my obvious duty to obey orders, however unpalatable. But now that the Committee has ceased to exist, (its work having during 1899 been divided between a new “Roads Committee” and a new “Health Committee,”) it may be permissible to remark that recent events, which none of us at that time could foresee, have amply demonstrated the correctness of the opinions which I formed as a result of my experiments; and have equally demonstrated the unwisdom of a “lay” Committee sitting in judgment on the scientific work of an expert. In July, 1898, I demonstrated the bacteriolysis of sludge in what is now called an “open septic tank;” this is now being claimed as a new discovery at Accrington, Manchester, and Chesterfield, (among doubtless many other places.) My last Report establishes the priority of my work; and the only result of the obstruction of the Committee of that day, is to deprive Knutsford of the honour of being generally recognised as the pioneer in this discovery.

Complaints of the effluent continue to be received occasionally. After some correspondence, Mr. Tatton, the Chief Inspector of the Mersey and Irwell Joint Committee, met the Council on July 22nd, to discuss the difficulty caused by the situation of the works at a spot where no land can possibly be obtained, and where the levels allow little scope for new works on the existing site. A scheme devised by the Medical Officer of Health was submitted to him in outline, and he advised that the same should be worked out fully in plans and estimate, and the scheme then submitted to the Local Government Board; together with an estimate of the cost of removing the works to a distant site, constructing new works, and raising the sewage to such site by some kind of pumping. The cost of the latter scheme, which is the only possible alternative one, was easily seen to be absolutely prohibitive; and he thought that the Local Government Board

would be compelled to recognise this fact, and *might* then grant borrowing powers for new works on the present site, if satisfactory in themselves, although no land could be obtained. The Council decided to follow this advice, and the Surveyor was instructed to prepare the plans and estimate according to the ideas of the Medical Officer of Health. Mr. Downes therefore prepared a plan, but found that it would be necessary to take the foundations below the water-level of the Moor. This of course was a fatal objection; independently of the fact that his estimate for the work was roughly something like £5000, without including anything for dealing with the necessity of executing certain work below water-level; and this made it also impossible for financial reasons. Mr. Longridge, a member of the Committee, then suggested approaching Messrs. Mather and Platt, of Salford, the makers of the mechanism in use at Hale, which the Committee had inspected and approved. This firm undertook to submit a complete scheme, embodying the principal features of the Medical Officer of Health's suggestions, and entrusted the civil-engineering part to Mr. C. J. Lomax, of 37, Cross Street, Manchester, one of the leading sewage-works engineers in the North of England. This is the point reached at the end of 1899.

Pollution of Rivers.—The brook forming the eastern boundary of the District has always been known to be more or less polluted in its whole length. Unfortunately it is also the source of the Knutsford water supply. It receives one serious pollution within the District, viz. : the overflow from the sewage tanks at Norbury Booths. This the Council is endeavouring to prevent, and in September ordered proceedings to be taken against the owner of the estate. This has not been actually carried out, as the Agent has put down some purification works. But after all, however good these may be, it will still remain a sewage effluent, and nothing else, that is being passed into the water supply. Personally I cannot see how this can be accepted as a solution of the difficulty.

Dwelling-houses unfit for Habitation.—On March 30th the Medical Officer of Health handed to the Sanitary Committee a formal representation under Sec. 30 of the Housing of the Working Classes Act, 1890, specifying 3 cottages in Cross Town as unfit for habitation. This was avowedly a test case; and as no action has followed on it, no further representations have been made. The reason which led the Committee to abstain from action was simply the fact that although these 3 cottages had but 1 bedroom between them, and were inhabited by 9 persons over 10 years of age, and 9 children under 10 years, yet if they were closed these 18 persons would simply be

compelled to take refuge in other cottages already inhabited (as there were none vacant in the District), and overcrowd them in turn. There is therefore reasonable justification for inaction, though the letter of the law has been ignored. The Committee has several times accompanied the Medical Officer of Health on practical visits of Inspection, and is fully convinced of the urgent need for the erection of more cottages, but is face to face with the difficulty that nearly all the available land is in the possession of one or other of the 5 large Estates; some of which refuse to sell on any terms at all, and the others only upon terms which prohibit the erection of cottage property as a paying investment.

Overcrowding.—This exists to a considerable extent, as detailed in my Annual Report for 1898, p. 105. There is no reason to believe that much improvement has yet taken place.

Housing of the Working Classes Act 1890.—A special Committee was appointed in 1898, and the details of the work done for it are given as above mentioned. In April, 1899, the Council carried into effect a suggestion which I had made in my last Report, viz. that all sanitary work, together with the work under this heading, should be intrusted to a new Committee, to be called the Health Committee. On February 7th the old Committee presented to the Council a lengthy Report dealing with the work done up to that time. After quoting the statistics which have been already furnished (Report 1898), the Committee commented upon the deficiency of sanitary conveniences; drew attention to the large number of houses (201) and persons (871) without proper water supply, and recommended the Council to take action under Sec. 62 of the Public Health Act 1875; noted the existence of overcrowding; made recommendations for the improvement of the Common Lodging-houses; mentioned that purely sanitary details were left to be dealt with by the Sanitary Committee; recommended that the Medical Officer of Health be requested to report specially upon a test case of houses unfit for habitation; stated that the question of the adoption of Part III. of this Act was still under consideration “but although the Committee realises the crying need of a considerable addition to the number of workmen’s dwellings in and around Knutsford, especially of a class to be let at not exceeding 4s. per week, they feel that it would be premature to expect the Council to undertake such a responsibility forthwith. The Committee therefore suggests for the present an alternative course, namely : the publication in whatever form the Council think preferable of this Report, or a digest thereof; in the hope that local interest will be aroused thereby, and that private enterprise will step in to fill the void which

“undoubtedly exists. Failing such private enterprise it must
 “be borne seriously in mind that the Council will be compelled
 “hereafter to adopt Part III. of the Act.”

The Report was printed in full, and distributed to all property owners, principal inhabitants, and others interested in the matter; it was also largely quoted from, and commented upon, by the local Press. After nearly 12 months' further careful consideration, the Committee is disappointed at the comparatively small results which have followed from its labours; and whilst still maintaining every recommendation which it has made, it has found the absolute impossibility (as I have explained above) of obtaining sites for building; and has therefore not yet felt itself able to recommend the adoption of Part III.; feeling that it would be an empty form; though I believe it is prepared to do so the moment anybody can show it a site, which can be obtained upon reasonable terms, so as to make the erection of cottages commercially possible. For the present therefore the following remarks of the Committee remain as applicable as they were last February, but until some land-owner will be public-spirited enough to consider the interests of the poor we have apparently arrived at a permanent dead-lock.

“There is abundant evidence to show that a large proportion
 “of the cottages are below a proper standard of what is required
 “for comfort or even decency. . . . The squalid condition
 “of certain areas usually corresponds with an abnormal death-
 “rate in such areas. That squalor should be associated with a
 “town in a situation such as Knutsford boasts (surrounded by
 “noble parks) indicates some abnormal condition or defect in
 “its municipal life, which is certainly a reflection on all con-
 “cerned. The Ratepayers should truly hold themselves respon-
 “sible for this unsatisfactory condition of the town, and the
 “Council will now realise its due responsibility, especially in
 “sustaining the efficiency of the salaried staff of officials whose
 “duty is to enforce the provisions of municipal law. . . .
 “In regard however to the better housing of the working classes,
 “your Committee urges upon the attention of the Council the
 “adoption of some efficient method to arouse the public con-
 “science, and especially to bring to the notice of the owners of
 “cottage property the more glaring deficiencies reported in this
 “inspection. Further that the Council use every argument to
 “induce such owners of cottage property and other men of
 “public spirit to erect a number of dwellings better suited to
 “the needs of the industrial classes of the town.”

Common Lodging-houses.—Of the 3 previously existing, 1 has now ceased to receive lodgers; the other 2 have had water laid on, and are thereby greatly improved; but they still remain in my opinion unsuitable buildings for the purpose.

Water Supply.—This remains as before. The Water Company is protected by a private Act of Parliament, which makes it difficult for the Council to apply pressure. The accident at the bore-hole reported on April 30th, 1898, was not rectified until November 17th, 1899. Since then boring has been resumed, but up to the time of writing there is no information of success in obtaining water. For the dangers to which the District is meanwhile subjected see my last Report, pp. 100 and 101.

Dairies and Cowsheds.—Nothing done.

Bakehouses and Slaughter-houses.—Periodically inspected and found satisfactory.

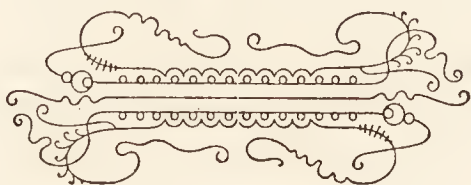
Cemetery.—A year ago the Local Government Board had sanctioned the purchase of the site at Tabley Hill, 5 acres in extent. This has been completed, and plans for buildings have been selected (after competition), and specifications have been got out (after further sanction from the Local Government Board following a local Enquiry held on June 28th). Finally tenders have been advertised for, and one has been accepted at £3,250.

Meanwhile the site has been properly fenced off. It has already been mentioned how invaluable it proved to the District by affording a site for a Fever Hospital in an emergency. This is now on the point of removal, and the laying out of the land for its original purpose will shortly be proceeded with.

T. W. H. GARSTANG,

M.R.C.S., D.P.H.

February, 1900.



INSPECTOR'S REPORT.

Sewer.—A new main sewer from the Railway Station to Bexton Road, including Cranford Avenue, has been completed and is a great advantage to the neighbourhood. This is by no means the only new main sewer required in the District.

The Peat-pail System.—This has been introduced in several new cottages built; and in a number of old cottages where it replaces old privies. I hope that it will be still more generally used as it is a very great improvement in the sanitary arrangements of cottage property.

Water-carriage System.—In several other cases this has been adopted in place of older arrangements.

Drains.—New drains have been laid to several blocks of old property. They were found to be drained with common field drain-pipes. They now have stoneware socketted pipes, and stoneware gullies of approved pattern in place of old defective traps.

These improvements have followed from the house-to-house inspection conducted last year by the Medical Officer of Health and myself.

Water Supply.—Another great improvement has been the supply of Town's water to the Common Lodging-houses, and to all the cottages in the Market Place. I hope this will be further carried out, as wherever I find stand-pipes water is generally running to waste, and as a rule causing a nuisance.

Common Lodging-houses.—These have been inspected several times during the year, and I have had no cause to complain. One has ceased to be a Lodging-house on account of there being so few "casuals."

Scavenging.—This has been generally well attended to. There is a very great increase in the work.

Infectious Diseases.—All notified cases have been visited; disinfectants supplied, and the houses disinfected. In only one instance has a fresh case occurred after the house had been disinfected.

WALTER J. DOWNES,

December 31st, 1899.

Surveyor and Inspector.

(A) Table of **DEATHS** during the Year 1899, in the Knutsford Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)	
The District (exclusive of the under- mentioned)	76	14	8	4	4	27	19	{ Under 5 ... 5 upwards ...
Workhouse	53	2	..	1	1	26	23	{ Under 5 ... 5 upwards ...
Gaol	4	1	...	...	...	3	...	{ Under 5 ... 5 upwards ...
TOTALS	133	17	8	5	5	56	42	{ Under 5 ... 5 upwards ...

The subjoined numbers have also to be taken into

Deaths occurring outside the district among persons belonging thereto.	1	...	...	...	...	...	1	{ Under 5 ... 5 upwards. ...
Deaths occurring within the district among persons not belonging thereto.	50	3	...	...	1	24	22	{ Under 5 ... 5 upwards. ...

(B) Table of **POPULATION, BIRTHS, AND OF NEW CASES OF**
of Health during the Year 1899, in the Knutsford Urban District;

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Last Census. (b)	Estimated to middle of 1899. (c)	Registered Births. (d)		Small-pox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Croup. 4
The District (exclusive of the under- mentioned)	4266	4900	95	{ Under 5. 5 upwds.	...	24 38	...	...
Workhouse	200	270	9	{ Under 5. 5 upwds.	...	...	...	...
*Gaol	177	278	3	{ Under 5. 5 upwds.	...	...	...	...
TOTALS	4643	5448	107					

State here whether "Notification of Infectious Disease" is compulsory in the District,--Yes.

*Exempt from Act. No Return.

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																					
Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever	Phthisis.	Bronchitis, Pneu- monia, & Pleurisy	Heart Disease.	Influenza.	Injuries.	All other Diseases.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	5	..	..	..	14	22
..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	4	10	8	1	..	30	54
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	6	4	5	2	..	32	51
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	3
..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	5	..	..	..	17	25
..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	11	16	13	3	..	63	108

account in judging of the above records of mortality.

..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3
..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	6	5	4	2	..	28	47

INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer
classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY COMING TO THE
OF THE MEDICAL OFFICER OF HEALTH.

FEVERS.									Number of such Cases re- moved from their Homes in the several Localities for Treatment in Isolation Hos- pital.	
Typhus.	Enteric or Typhoid.	Continued	Relapsing	Puerperal.	Cholera.	Erysipelas.			Scarla- tina.	Diph- theria.
5	6	7	8	9	10	11	12	13	2	3
..	1	..	..	..	..	..	..	..	3	..
..	3	..	..	1	..	2	..	..	15	..
..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	1
..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..

Since when?--1st January, 1890. Temporary Hospital at Tabley Hill since July 22nd.

SUPPLEMENTARY TABLE I.

Shewing Births, Birth-rate, Deaths, and General and Zymotic Death-rates, and compared with average of last 10 years ; and Deaths in Old Age and Infancy, and percentages of these to Total Deaths ; for the Year 1899.

TOTAL.			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
Births.	Deaths	Zymotic Deaths.	Average.	1899.	General.		Zymotic.		At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
					Average.	1899.	Average.	1899.				
103	84	3	28·7	21·0	15·1	17·3	1·4	0·6	21	14	25	17

SUPPLEMENTARY TABLE II.

Shewing Deaths, Death-rates, Deaths from Special Diseases, and Old Age and Infantile Deaths, in the Four Quarters of the Year, 1899.

QUARTER ENDING.			Total Deaths.	Rate.	DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.		Whooping Cough.	Diarrhoea.	ZYMOTIC DEATHS.		Phthisis.
					At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.			Total.	Rate.	
March	31	...	21	17·4	6	4	27	18	—	—	—	—	2
June	30	...	18	14·7	4	1	16	4	—	—	—	—	0
Sept.	30	...	19	15·4	3	6	10	20	1	1	2	1·6	2
Dec.	31	...	26	21·1	8	3	42	16	1	—	1	0·8	1

SUPPLEMENTARY TABLE III.—BIRTHS.

		M.	F.	Total.	Rate.	Of which Illegit.			Additional in Workhouse & Gaol.					
									Illegit.					
						M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1st Quarter	...	14	14	28	23·2	0	2	2	3	0	3	3	0	3
2nd	„	12	13	25	20·5	0	0	0	1	0	1	1	0	1
3rd	„	20	10	30	24·3	1	1	2	1	1	2	0	1	1
4th	„	12	8	20	16·2	0	1	1	3	1	4	2	1	3
		58	45	103	21·0	1	4	5	8	2	10	6	2	8

SUPPLEMENTARY TABLE IV.

Shewing position of Knutsford in the County in 1898, compared with 37 other Urban Districts.

	Best of 36 Urban Districts	Worst of 36 Urban Districts	Knuts- ford Figures.	Place of Knuts- ford in the List.
Birth Rate	35·5	13·5	26·0	20
Death Rate	7·7	22·3	17·4	30
Zymotic Death Rate	0·0	4·4	2·0	21
Infantile Mortality	50	235	198	33

Winsford Urban District.

ANNUAL REPORT OF MEDICAL OFFICER OF HEALTH FOR 1899.

Population at Census, 1891, 10,440.

Estimated Population in middle of 1899, 10,850.

Area in Acres 5,780.

Birth Rate per 1,000 living, 31·4.

Death Rate per 1,000 living, 15·1.

Death Rate from Seven Principal Zymotic Diseases, 1·6.

Deaths under one year in proportion to 1,000 Births, 123.

Note.—The matters dealt with on pages 5 to 13 are to be read as a part of this Report.

Population.—For several years there is believed to have been little increase in the population. Bad trade, throwing men out of work, has counterbalanced the natural increase. For 1899 the numbers are placed at 10,850, (viz.: Over, 7185, and Wharton, 3665). This is a nominal increase of 40 over 1898 and of 410 over 1891. A new census in 1901 will soon remove any doubts on this point.

Tables.—Supplementary Tables have been prepared in the usual form in addition to the Official Tables A and B. As seen in print at the end of this Report they look very simple and straightforward. The amount of work really involved in their preparation is very considerable; and my only reward is the hope that the details given may prove of interest to my readers, and of value to the future historian.

Births.—(Supplementary Table III.) The Births registered are 341, compared with 352 in 1898. This gives a Rate of 31·4. The Rates for the previous 10 years 1889–1898 have been given as :—32·4, 31·0, 36·3, 32·2, 36·3, 35·1, 36·1, 36·1, 33·6, and 32·5; of which the average is 34·1; so that 1899, like the two preceding years, shows a slight decline from the average; the Rate now recorded being less than any previous year except 1890.

Deaths.—(Supplementary Table II.) The Deaths registered are 167, but 3 of these have to be deducted as those of strangers, leaving 164 as the true number; which gives a Rate of 15·1. The Rates for the previous 10 years are as follows:—15·0, 15·0, 19·2, 18·9, 17·0, 14·2, 19·3, 14·9, 16·7, and 14·8; the average of which is 16·2; the present year therefore being below the average, and only 0·3 above 1898.

Comparative Position.—(Supplementary Table IV.) In comparison with the other Urban Districts in the County for 1898 Winsford may be considered to stand fairly well, the Zymotic death-rate being the only one which is below the mean.

Infant Mortality.—The occurrence of 42 deaths under 1 year of age, where there have been 341 births, gives the proportion of 123 to 1000. The corresponding numbers for the past 10 years have been:—122, 123, 172, 159, 159, 117, 166, 130, 184, and 148; the average of which is 148; so that 1899 is well below the average, and one of the best years on record, having only been beaten 4 times since 1878. The 42 deaths are classified as follows:—prematurity and debility 14, convulsions 10, bronchitis and pneumonia 4, Zymotic diseases 9, (viz.: scarlet fever 1, measles 3, whooping-cough 1, and diarrhœa 4), tuberculous disease 1, and miscellaneous causes 4. As I remark year by year, many of these deaths were unnecessary; (for fuller comment refer to Annual Report for 1897).

Illegitimate Infants.—The number born was 15, or 4·4 per cent. of births. (Over, 4·8; and Wharton 3·5). Six of these died, being 40 per cent. of illegitimate births; whilst the 36 that died among 326 legitimate births are 11 per cent. only.

Still-born Children.—See Bucklow Report.

Mortality among Old People.—This was 30 per cent., which is considerably higher than the average in the Urban Districts in 1898. This of course will tell favourably in comparing the proportion of deaths in middle life.

Uncertified Deaths.—Only 4 were recorded, or 2·4 per cent. They were:—M. 5 months, ear and brain disease; M. 75 years, heart disease; F. 3 years, convulsions; and M. 11 months, measles and pneumonia.

Coroners' Inquests.—These were held in 15 cases, 2 of which did not belong to the District, viz.: M. 46 years, syncope, (Rochdale); and M. 3 years, shock from burns, (Middlewich). The others were:—M. 88 years, burns from falling onto a stove; F. 61 years, syncope; F. 44 years, found dead in bed from bronchitis and starvation; M. 72 years, crushed on railway; M. 44 years, killed by fall of telephone pole; M. 47 years, tetanus following fall from cart; M. 6 years, accidentally

drowned in the river; F. 67 years, exhaustion following operation after accident; M. 71 years, spinal injuries, fall from ladder; M. 53 years, suicide, cut throat, temporary insanity; M. 32 years, erysipelas following wound to knee, from fall; M. 47 years, shock from fall into river; and M. 2 years, burns.

Zymotic Diseases.—The Deaths registered were scarlet fever 1, measles 7, whooping-cough 3, diarrhœa 6, total 17; giving a Rate of 1·6. The Rates for the previous 10 years have been:—1·2, 1·2, 1·4, 0·9, 0·8, 1·8, 2·6, 1·8, 4·2, and 1·9; the average of which is 1·8. The average for England and Wales for the same years was 2·2.

Vaccination.—See Bucklow Report.

Measles.—This disease was present in Over in July; when 120 scholars were absent out of 350 at St. John's School, and 30 out of 220 at the Infant Department of the Board School. The Mixed School also closed on July 21st for the holidays. The epidemic practically abated during the holidays. In Wharton it appeared in December; at least 30 houses being affected; and the schools were closed, nominally on the 11th, but actually on the 14th. Seven deaths were recorded, (Over 6, Wharton 1). Of the Over deaths, 2 occurred at 2 years, 1 at 1 year, and 3 below 1 year. They were all complicated with bronchitis and pneumonia; and occurred 3 in July, 1 in August, and 2 in September. The Wharton death occurred at the end of December, at 3 years of age, complicated with pneumonia. The whole of these deaths therefore are in strict accordance with the experience which teaches us that measles is mainly fatal in the early years of life, and that death is due nearly always, not so much to measles itself, as to intercurrent chest ailments. If these facts could only be forced upon the attention of mothers among the working classes, most of the deaths from measles might be easily prevented.

Scarlet Fever.—Like its neighbour Middlewich, Winsford has been little subject to this disease in 1899, though many Districts in the County have suffered from severe epidemics. It may be that having had 173 cases (7 deaths) in 1896; 25 cases (no deaths) in 1897; and 11 cases, (2 deaths) in 1898, there has not yet accumulated a sufficient number of susceptible children to afford food for an epidemic. In 1899 18 cases were notified, (Over 16, Wharton 2). Eight occurred in November and 10 in December. The 2 Wharton cases were in one house, and were removed to Hospital on Dec. 4th and 8th respectively, and remained there at the end of the year; being ultimately discharged cured on February 1st, 1900. In the 16 Over cases which occurred in 12 houses, somewhat scattered, we were unable to induce any of the parents to permit removal to

Hospital. Early in November when the first cases were visited, it was found that there were in the District several other suspicious cases which had not received medical attendance. I cannot therefore say that if the earlier notified cases had been promptly removed, the epidemic would have been checked, as the un-notified cases might have kept it going. Moreover the Hospital is only large enough for 2 adults, or 4 small children, so that accommodation might have failed. Fortunately only 1 death has occurred. This was in December, a child 5 months of age.

Diphtheria.—Only 2 cases were notified. One was in the Hospital from February 23rd to March 29th, and after a tedious and troublesome illness was discharged cured. This was a farm labourer, 17 years of age, who caught the disease in Marton (Northwich Rural District.) The other case occurred in the town in September. Bacteriological examination was made with a negative result.

Whooping Cough.—Two deaths were reported in Wharton in April, both complicated with pneumonia, in children aged 4 years and $1\frac{1}{2}$ years. This led to an enquiry and it was found early in May, by visiting absentees from school, that there were at least 10 houses affected. The total number of cases is of course unknown, but the disease seemed to disappear about the end of May. In September 1 death was recorded in Over, a child of 4 months. I have no information as to the extent to which the disease prevailed at that time; this of course implies that it was not serious.

Enteric Fever.—Only 1 case was notified, which occurred in December, and was submitted to bacteriological examination, with positive result (*i.e.* confirmation). There had been no previous case in the District since March, 1898, and before that October, 1897, and before that April, 1896. One case per year for 4 years shows that the District may be considered practically free from this disease.

Puerperal Fever.—One case notified in October, which proved fatal. From the fact that nearly every notified case of this disease does prove fatal, I am inclined to form an opinion that milder cases, if and when they occur, are not notified, probably owing to doubt as to the diagnosis, and that the only cases actually notified are those which are obviously taking bad ways, and threatening to prove rapidly fatal.

Diarrhœa.—Six deaths were registered, all in Over; 1 in January (9 months), 1 in February (54 years), 2 in July (3 months; and 84 years), and 2 in August (2 months and 3 months). In 1898 there were 18 deaths; in 1897 11 deaths; in 1896 5 deaths; and in 1895 17 deaths; so that 1899 may be

considered an exceptionally favourable year, in spite of the hot summer. (For general remarks on this subject, see Middlewich Report).

Erysipelas.—Out of 39 cases of infectious disease notified; no less than 17 have been attributed to erysipelas. This curious prevalence has been shared with Middlewich alone out of all my Districts. The cases occurred, 2 in February, 3 in March, 5 in May, 1 in July, 1 in October, 4 in November, and 1 in December. They include 2 children under 1 year, and 3 others under 10 years. Four were over 60 years, and the remainder in middle life. (See Middlewich Report).

Influenza.—In common with all my Districts, some deaths were attributed specifically to this disease, viz.: 2 in March (65 years, and 75 years), both complicated with heart disease; and 1 in August (54 years), complicated with pneumonia. Rate, 0·28.

Phthisis.—13 deaths were registered, spread over the whole year; and occurring at all ages, from 10 months to 58 years; but mainly among young adults at the time when their lives ought to have been most vigorous. Rate 1·2.

Bronchitis, etc.—26 deaths were attributed to respiratory diseases. This gives a Rate of 2·4.

Heart Disease.—14 deaths. Rate 1·3.

Injuries.—11 deaths registered, of which 1 belonged to Middlewich. See previous paragraph “Coroners’ Inquests.”

Alcoholism.—None.

Cancer.—This appears 7 times, 4 males and 3 females, at ages from 21 to 65 years.

Lock-jaw.—On July 17th a man aged 47 years died in the Albert Infirmary, Wharton, upon whose body an inquest was held. The verdict returned was “died from lock-jaw following “a compound fracture of the right leg, through having fallen off “a cart of hay.”

This cause of death is so rare, that I may take the opportunity of pointing out, in the words of the County Medical Officer of Health (Annual Report 1898), that “this disease is a specific “infective fever, due to the introduction into the system of a “micro-organism in soil taken from the streets or cultivated “land. The disease may ensue from any wound in any part of “the body, but occurs more frequently in connection with “wounds in a part exposed to earth or dirt. . . . This “teaches that in respect of all wounds scrupulous cleanliness is “of first importance.”

Notifications.—The number received during the year has been, scarlet fever 18, diphtheria 2, enteric fever 1, puerperal

fever 1, erysipelas 17, total 39. In 1898 there were 22, in 1897 47, in 1896 197, and in 1895 46.

Isolation Hospital.—Three cases were treated in hospital during 1899; see previous paragraphs, “scarlet fever” and “diphtheria.” A trained nurse from Liverpool was obtained for the later cases; the local nurse employed at the beginning of the year having resigned in April. A person from the town is employed as general assistant to the nurse; and Mr. Oakes, the Inspector, has devoted much time to general supervision. Mr. Cooke, the Clerk, has also rendered invaluable services; and all hospital arrangements have been worked with perfect smoothness from his office. After my experience with the Knutsford Temporary Hospital, I thought it desirable to recommend the Council that there ought to be a Medical Superintendent; not because there had been any failure or friction in the previous arrangements, but simply as a safeguard for the future, and as giving the Council a properly qualified (*i.e.* medically qualified) officer to be responsible for the general medical charge of the Hospital. The Council endorsed this view, and at the end of December asked me to undertake the duties. They will not be heavy; as Mr. Cooke will continue to engage nurses and servants when necessary, Mr. Oakes will continue to supervise the arrangements with the tradesmen, and the local medical practitioners will continue to attend their own cases. It is possible that I may have practically nothing to do; still circumstances *might* arise which needed the authority of a formally appointed medical Director, and therefore I consider my appointment to be simply a needful precaution.

The Hospital continues to be efficient up to its very limited capacity, but the accommodation for the nurse is sadly insufficient.

Some amusement was caused by the wording of a paragraph in my last Report p. 62 where I spoke metaphorically of “the rumblings of the distant thunder of County Council disapproval.” If I might continue the metaphor, I should say that the storm has continued to brew during 1899, that the horizon is black, and the thunder louder. In other words it is pretty well known that the Public Health Committee of the County Council intends to make another effort at the February meeting to induce that body to exercise its powers under the Isolation Hospitals Act 1893. Should this be successful an entirely new position will be created; but it is premature to discuss it further at present.

Systematic Inspections.—The District is thoroughly well looked after by the Inspector. Personally I visit periodically and make inspections upon whatever lines he may suggest. Thus in the course of the year all matters receive attention in turn. Anything like house-to-house inspection is of course for

me quite out of the question, and has never been attempted.

Ashpits, etc.—These remain much as before. See Knutsford Report.

Refuse Removal.—I have never concealed my opinion that the system of excrement disposal is about the worst possible. I wrote about it at length in my last Report, and I have nothing fresh to say on this occasion. The peat pail system has been recommended by myself, and by the one or two members of the Council who have seen it in operation at Congleton; and the matter has been down for months upon the agenda of the General Purposes Committee for consideration; but it appears to be the fate of this question to be elbowed out on each occasion by something else of more pressing importance at the moment.

Sewage Works.—These have continued upon the usual lines, uneventfully, and I have nothing to add to or take from the paragraph in my last Report.

Dwelling Houses Unfit for Habitation.—None reported.

Water Supply.—The public supply is derived from springs in the Township of Little Budworth, and is generally satisfactory in quality. Storage is however required, and a new reservoir (to hold a million and a half gallons) has been built at Over. The construction of this reservoir has unfortunately been marred by faulty work. The contractor has failed, the engineer has died, and the Council is left in a very awkward predicament. Strictly speaking I have no particular concern with this matter, but I have never hesitated to mention in my Reports any matters of public interest, however remotely connected with public health, if only there was such a connection, even if not in my department. It is therefore because I am not sufficiently acquainted with the details that I leave this subject without further mention. The total volume of water supplied by the springs is about 200,000 gallons per day. An attempt to increase the supply by boring failed. A depth of 1400 feet was reached, almost entirely through marl; it had been expected that sandstone rock would have been reached very much sooner. At that depth the boring was abandoned.

Dairies and Cowsheds.—A considerable amount of work has been done under this head. All the cowsheds in the District have been again inspected, and the Council has from time to time printed and issued to owners and occupiers my detailed Reports. It is hoped that the necessary improvements will be secured by this “moral pressure;” no formal notices under the Order have yet been issued. In several cases the buildings are of flimsy construction, and it is impossible to apply to these the

same requirements which pertain to substantial brick buildings. In all alike, however, light and ventilation should be required, together with an impervious floor and proper drainage. On the whole, the inspection revealed considerable improvements effected since the previous one, especially in the matter of general cleanliness ; but white-washing was much neglected, and indeed many occupiers seemed quite unaware that it was required to be done in May and October. Although progress is slow it has so far been without friction, which is of good augury for the future.

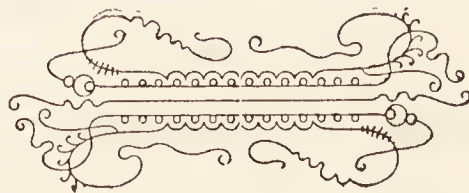
Common Lodging-houses.	} Periodically inspected. In the case of one proposed new slaughter-house, the license was refused, after a special inspection and report by the Medical Officer of Health.
Bakehouses.	
Slaughter-houses.	

Conclusion.—This Report appears to be short, in comparison with some others in the Volume. Paragraphs in other Reports, merely referred to without quotation for the sake of avoiding useless repetition, are to be considered as part also of this Report ; when it will be found that it has attained to quite respectable dimensions.

T. W. H. GARSTANG,

M.R.C.S., D.P.H.

February, 1900.



INSPECTOR'S REPORT.

The District is divided into four parts for Scavenging purposes. Ashes and house-refuse are removed once in each month from all premises.

The privies, which serve 2008 out of 2305 houses, are emptied three times a year. This is done by contract at a price of 4d. per privy for carting, and 6d. for emptying.

Schools in the District have been twice disinfected during the year.

All known cases of infectious disease have been visited and enquired into, and disinfectants supplied. Removal to Hospital was offered in the majority of cases, but only accepted in three.

Whenever deaths have occurred from phthisis, offer to disinfect has been made, and in most cases disinfection has been carried out.

Canal Boats.—The Act hardly applies to the vessels trading on the river Weaver; as all the steamers and large barges, and many of the smaller craft also, are registered under the Merchant Shipping Act. The cabins of the smaller boats are not occupied as dwellings.

For the information of the Medical Officer of Health I have compiled the following statistics :—

	Water closets.	Pails.	Privies outside the Scavenging Area.	Houses served by privies, & scavenged.	Total number of houses.
Over ...	184	27	140	1191	1542
Wharton ...	72	14	20	657	763
Total ...	256	41	160	1848	2305

The number of privies emptied during the last six months is 2811; for which the scavengers have received 6d. per privy, making £70 5s. 6d.; and the carters 4d., making £46 17s. 0d.; total £117 2s. 6d.

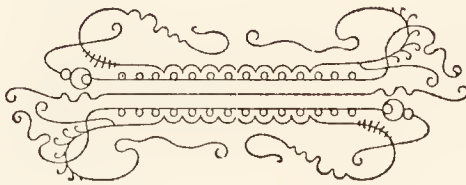
The surface-water street-grids have also been carefully examined. Beneath each grid is a receptacle or chamber; many of these discharge into the main sewers, though some have separate outfalls unconnected with the sewers. In Over there are 257 of these grids, of which 81 are not trapped. In Wharton there are 147 grids, of which again 81 are not trapped. I am unfortunately not able to say how many of the untrapped grids are in connection with the sewers, and how many with independent outlets.

The volume of sewage arriving at each of the filter grounds has never been measured; it has however been noticed that it increases rapidly when rain falls.

RALPH OAKES,

January, 1900.

Inspector.



(A) Table of **DEATHS** during the Year 1899, in the Winsford Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)	
Over	98	30	12	4	4	17	31	{ Under 5 ... 5 upwards ...
Wharton	69	12	7	...	4	28	18	{ Under 5 ... 5 upwards ...
TOTALS	167	42	19	4	8	45	49	{ Under 5 ... 5 upwards ...

The subjoined numbers have also to be taken into

Deaths occurring outside the district among persons belonging thereto.	...	...	...	...	...	...	...	{ Under 5 ... 5 upwards ...
Deaths occurring within the district among persons not belonging thereto.	3	...	1	...	...	2	...	{ Under 5 ... 5 upwards ...

(B) Table of **POPULATION, BIRTHS, AND OF NEW CASES OF**
of Health during the Year 1899, in the Winsford Urban District;

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Last Census. (b)	Estimated to middle of 1899. (c)	Registered Births. (d)		Small-pox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
Over	6835	7185	227	{ Under 5. 5 upwds.	...	5 11	... 2	... ...
Wharton (H)	3605	3665	114	{ Under 5. 5 upwds.	...	... 2	... ...	... ...
TOTALS	10440	10850	341	{ Under 5. 5 upwds.	...	5 13	... 2	... ...

State here whether "Notification of Infectious Disease" is compulsory in the District,—Yes.

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																					
1	2	3	4	FEVERS.					10	11	12	13	14	15	16	17	18	19	20	21	22
				Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.													
Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.						Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever	Phthisis.	Bronchitis, Pneu- monia, & Pleurisy	Heart Disease.	Influenza.	Injuries.	All other Diseases.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
..	I	...	...	...	...	...	...	...	...	...	6	I	4	...	2	8	...	...	...	20	42
...	...	...	...	...	...	...	...	...	...	I	...	...	2	...	6	9	4	2	2	30	56
...	...	...	...	...	...	...	...	...	...	...	I	2	...	...	I	I	...	...	3	11	19
...	...	...	...	...	...	...	...	I	...	...	...	...	...	...	4	8	10	I	6	20	50
...	I	...	...	...	...	...	...	...	...	...	7	3	4	...	3	9	...	...	3	31	61
...	...	...	...	...	...	...	...	I	...	I	...	...	2	...	10	17	14	3	8	50	106

account in judging of the above records of mortality.

...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	I	...	...	I
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2

INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer
classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.										Number of such Cases re- moved from their Homes in the several Localities for Treatment in Isolation Hos- pital.	
FEVERS.					10	11	12	13		2	3
Typhus.	Enteric or Typhoid.	Continued	Relapsing	Puerperal.							
5	6	7	8	9							
...	...	...	...	...	...	2	...	...	...	...	...
...	I	...	...	...	...	9	...	...	...	...	I
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	I	...	6	...	...	...	2	...
...	...	...	...	...	...	...	...	...	...	...	...
...	I	...	...	I	...	2	...	...	...	...	...
...	...	...	...	...	...	15	...	...	...	2	I

Since when?—1st January, 1890. Rilshaw Lane Hospital.

SUPPLEMENTARY TABLE I.

Shewing Births, Birth-rate, Deaths, and General and Zymotic Death-rates, and compared with average of last 10 years ; and Deaths in Old Age and Infancy, and percentages of these to Total Deaths ; for the Year 1899.

TOTAL.			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
Births.	Deaths	Zymotic Deaths.	Average.	1899.	General.		Zymotic.		At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
					Average.	1899.	Average.	1899.				
341	164	17	34.1	31.4	16.2	15.1	1.8	1.6	49	42	30	25

SUPPLEMENTARY TABLE II.

Shewing Deaths, Death-rates, Deaths from Special Diseases, and Old Age and Infantile Deaths, in the Four Quarters of the Year, 1899.

QUARTER ENDING.	Total Deaths.	Rate.	DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.		Scarlet Fever.	Measles.	Whooping Cough.	Diarrhoea.	ZYMOTIC DEATHS.		Phthisis.
			At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.					Total.	Rate.	
March 31	47	17.6	15	13	32	28				2	2	0.7	6
June 30	44	16.2	19	6	43	14			2		2	0.7	1
Sept. 30	38	13.9	9	15	24	40		6	1	4	11	4.0	2
Dec. 31	35	12.8	6	8	17	23	1	1			2	0.7	4
Total	164	15.1	49	42	30	25	1	7	3	6	17	1.6	13

SUPPLEMENTARY TABLE III.—BIRTHS.

Total Number 188 M. + 153 F. = 341. Rate 31·4.

	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.
Over ...	60	2	66	5	40	3	61	1	227	11
Wharton ...	28	0	26	0	30	1	30	3	114	4
Total ...	88	2	92	5	70	4	91	4	341	15

The Quarterly Rates are as follows :

Over	33·8,	36·8,	22·1,	33·7 ;
Wharton	31·0,	28·4,	32·5,	32·5.

The Annual Rate for Over is 31·6 ; for Wharton 31·1.

SUPPLEMENTARY TABLE IV.

Shewing position of Winsford in the County in 1898, compared with 35 other Urban Districts.

	Best of 36 Urban Districts	Worst of 36 Urban Districts	Wins- ford Figures.	Place of Wins- ford in the List.
Birth Rate	35·5	13·5	32·5	6
Death Rate	7·7	22·3	14·8	15
Zymotic Death Rate	0·0	4·4	1·9	20
Infantile Mortality	50	235	147	15

SUPPLEMENTARY TABLE V.

Deaths from Infections Diseases Registered in Winsford,
1878—1899, (22 years).

Total Deaths.	A.D.	Smallpox.	Cholera.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Whooping-Cough.	Measles.	Diarrhoea.	Phthisis.
221	1878	...	...	32	16	2	...	...	4	...	13	7
169	1879	...	...	1	1	...	...	...	7	6	6	19
191	1880	...	...	1	7	5	...	...	...	10	9	11
175	1881	...	...	4	4	1	1	1	...	...	9	7
166	1882	...	...	3	3	2	2	1	10	3	4	12
167	1883	...	...	4	5	2	...	...	...	5	7	12
184	1884	...	1	...	...	6	...	1	1	3	14	18
208	1885	...	...	29	2	1	...	1	7	3	3	10
171	1886	...	...	1	...	1	...	...	7	...	10	11
201	1887	1	...	6	1	...	...	1	1	29	3	12
153	1888	...	...	4	...	2	3	...	4	...	7	6
174	1889	...	...	2	...	...	2	...	8	4	6	17
177	1890	...	...	3	6	1	...	...	1	1	4	11
202	1891	...	...	...	2	...	...	1	13	...	7	14
197	1892	...	...	1	5	...	...	1	...	5	3	9
184	1893	1	...	7	1	...	3	1	...	...	11	12
151	1894	...	...	1	...	1	...	...	12	3	2	8
215	1895	...	...	3	...	...	5	...	1	9	17	10
155	1896	...	...	7	3	1	...	...	...	3	5	21
177	1897	...	...	...	...	...	...	...	33	1	11	11
157	1898	...	...	2	1	...	...	...	...	...	18	11
164	1899	...	...	1	...	...	1	1	3	7	6	13
3959		2	1	112	57	25	17	9	112	92	175	263

Middlewich Urban District.

ANNUAL REPORT OF MEDICAL OFFICER OF HEALTH FOR 1899.

Population at Census, 1891, 4,001.

Estimated Population in middle of 1899, 4,650.

Area in Acres, 1,095.

Birth Rate per 1,000 living, 34·6.

Death Rate per 1,000 living, 17·2.

Death Rate from Seven Principal Zymotic Diseases, 2·1.

Deaths under one year in proportion to 1,000 Births, 168.

Note.—The matters dealt with on pages 5 to 13 are to be read as a part of this Report.

Population.—The tendency during the past two years has been towards diminution, on account of bad trade and want of employment. There is no means of ascertaining it for 1899 with any exactness, and it must be confessed that the number adopted, 4650, is little more than guess-work. Next year being census year we shall soon be able to make a fresh start.

Middlewich lies about midway on the canal between Runcorn and the Potteries, and is much used by boats for “tying up” at night. This introduces an unstable element in the population, and some members of the Council very strongly believe that returns are made more unfavourable than they ought to be by this cause. Certainly after writing my Report for 1898 an enquiry made into the true residence of 30 infants who died under 1 year of age in that year led to the omission of 4 cases from the Middlewich returns, so that the infant mortality became 159 instead of 183. This year also 4 similar deaths (of infants) in July and September were found to belong really to other Districts. It has been stated also that Middlewich is made a convenient place of registration for deaths which occur

outside the District, along a considerable length of canal. I have promised the aforesaid members of the Council to give every possible prominence to these views. If the Registrar of Deaths would take the trouble to ascertain the true residence in all cases of deaths registered among the canal population there would be no difficulty in publishing correct figures, and I hope that during 1900 he will do this, as he was requested to do by the Council in October. It is the only one of my Districts where deaths of strangers have not been carefully marked as such in the weekly returns. This is done as a matter of course in every other Registration District from which I receive returns.

Births.—(Supplementary Table III.) The births registered are 161, compared with 163 in 1898. The birth-rate is 34·6. The birth-rates for the previous 10 years have been:—30·2, 30·9, 40·0, 39·3, 40·0, 43·1, 36·2, 38·6, 37·0, and 35·2; of which the average is 37·0. If the earlier Rates in this list may be relied upon, there appears to be a slight decline in progress. This corresponds naturally to the diminution in population caused by the loss of a number of young adults owing to want of employment.

Deaths.—The deaths registered in the District were 84, of which 6 are excluded, and 2 which occurred outside are included. The corrected number therefore is 80 and the Rate is 17·2. The Rates for the previous 10 years have been:—14·6, 15·9, 21·0, 22·4, 20·0, 11·3, 20·8, 16·8, 15·6, and 14·9; of which the average is 17·3. The fluctuations in this list are somewhat mysterious, and as the majority of the numbers were calculated by Dr. Fox, before I had any official connection with the District, I am unable to offer any explanation. I can only say, assuming them all to be correct, that we seem to be this year exactly at the average of the previous 10 years, and with a higher Rate than any of the 3 years immediately preceding.

Comparative Position.—(Supplementary Table IV.) In comparison with the other Urban Districts in the County for 1898 the position of Middlewich may be considered just about the mean; as with one of the highest birth-rates, and one of the worst Zymotic death-rates, the general death-rate and infantile mortality figure are almost exactly in the middle of the lists.

Infant Mortality.—The corrected number of deaths under 1 year of age is 27. Compared to 161 births this is in the proportion of 168 to 1000, and 168 is therefore called the “Infant Mortality figure.” For the previous 10 years these figures have been:—177, 206, 172, 166, 164, 87, 186, 134, 182, and 159; of which the average is 163. In this point again 1899 is very close to the 10-years’ average. The average for England and Wales

for the same 10 years is 151·4, so that Middlewich is not very much worse than the Kingdom generally. What makes it appear bad is the fact that it is placed in close contrast with my other Districts in the Table on p. 4; and that it is much the worst in that Table.

The 27 deaths may be classified as follows:—Premature 8, malformed 1, respiratory diseases 6, tuberculous diseases 2, diarrhœa 7, and sundry causes 3. (For fuller comment, refer to previous Annual Reports).

Illegitimate Infants.—Of the births registered 9 were illegitimate, equal to 5·6 per cent. of total births. As far as I can make out, 1 of these illegitimate children died, equal to 11 per cent. of illegitimate births; whilst the percentage amongst the legitimate children (26 out of 152) is 17.

Still-born Children.—See Bucklow Report.

Mortality among Old People.—This was 28 per cent., which is rather higher than the average in the Urban Districts in 1898.

Uncertified Deaths.—None recorded. Very few Districts can say as much.

Coroners' Inquests.—4 were held, of which 1 was on a non-resident. On the other hand 1 was held in the Winsford District on a child belonging to Middlewich. The particulars are:—May 5th, M. 2 $\frac{3}{4}$ years, shock from burns caused by playing with lighted paper; August 6th, M. 3 years, shock from burns; September 8th, M. 19 years, accidental fall, owing to faulty roof, into pan of boiling brine; September 25th, F. 68 years, apoplexy, accidentally knocked down by a trap.

Zymotic Diseases.—The only deaths registered (excluding non-residents) were 10 from diarrhœa. These all occurred between July 25th and October 28th. 1 was a F. at 79 years; 1 was a F. at 29 years, complicating heart disease; the remainder were all at or below 1 year of age. These deaths cause a Zymotic Rate of 2·1. The Rates for the previous 10 years 1889–1898 were:—2·0, 0·0, 2·3, 0·2, 2·4, 0·6, 2·9, 2·9, 2·3, and 3·4; of which the average is 1·9. The average for England and Wales for the same year was 2·2.

Vaccination.—See Bucklow Report.

Measles.—Nothing officially known of this disease.

Scarlet Fever.—Whilst other Districts in the County have been suffering from severe epidemics, this District has been fairly free since the epidemic of 1896, having had only 18 cases in 1897, 11 cases in 1898, and now 2 cases only in 1899. These occurred in July and September respectively, and afford no grounds for further comment.

Diphtheria.—Entirely absent in 1899. Only 3 cases were notified in 1898, 2 in 1897, and 2 in 1896. This is a very good record.

Whooping Cough.—Nothing officially known of this disease.

Enteric Fever.—One case only occurred, viz.: November 20th, M. 40 years. The patient had been ill some 2 or 3 weeks when notified. Bacteriological examination confirmed the diagnosis. The case recovered; and no others have been notified, which must be looked upon as an extremely fortunate termination.

Puerperal Fever.—No cases.

Diarrhœa.—This has been referred to under “Zymotic Diseases.” There were 10 deaths in 1899, 9 in 1898, 4 in 1897, 5 in 1896. So that 1899 has been distinctly worse than the average. A Zymotic Rate of 2·1, caused by this disease alone, certainly calls for comment. I will therefore briefly recapitulate the facts, as they are at present known, in connection with epidemic or Zymotic diarrhœa. First, it occurs almost entirely in the third quarter of the year; because it requires a certain temperature which is in England only prevalent at that time. Second, the infection exists and multiplies in the soil, and especially in the surface layers of it. This is greatly intensified wherever the soil is polluted with decaying organic matter, such as in the neighbourhood of privy-middens and cess-pools, and in ordinary cottage yards and passages where slops are thrown carelessly about, and where the paving and the drainage are defective. Third, the poison gains access to the human body through the medium of articles of food, and of these milk is much the most important. Milk absorbs the poison readily, and not only so, but also it forms a favourable medium for the rapid multiplication of the minute germs which form this poison. These germs are so microscopic that from one to three millions can exist in a thimbleful of ordinary garden mould; and a single germ getting into milk in hot weather might produce in the course of 24 hours a progeny of more than 16 millions. It can therefore be easily seen that a bowl of milk left standing in hot weather near an open window looking onto a small yard saturated with refuse, or with an untrapped drain, or with a midden-privy, might easily become an active poison to those whose physical condition makes them peculiarly susceptible to it; I refer to young children, and particularly those under 1 year of age, who always form the immense majority of the victims to this disease. Fourth, it only remains to show how the germs are actually transferred from the soil to the milk. There is every reason to believe that this is effected to a great extent by the common house-fly. A moment’s reflection will convince

anybody, without argument on my part, of the certain possibility of this occurrence; as to its probability, if any are inclined to be sceptical, I can only assure them that the opinion is held by many good authorities, and I certainly believe it myself. Fifth, the theories advanced may be considered to be proved by the facts always found on investigation, (a) the deaths mainly occur in infants under 1 year old; (b) breast-fed infants are hardly affected at all; the deaths occur among those that are being brought up on "the bottle;" (c) children of the upper classes and of those who live on sanitary premises escape, the victims being found in greater numbers in exact proportion to the insanitary and overcrowded conditions obtaining. Sixth, for the prevention of deaths from diarrhœa therefore, I repeat again the necessity for a much more active policy than has ever yet been carried out in this District in the direction of improving the sanitary surroundings of the cottage property, together with the dissemination among the cottagers of instructions how to preserve food (more particularly milk) from contamination, and finally general cleanliness of cottage interiors, for there is no doubt that this helps to keep them free from flies.

Erysipelas.—Out of 23 cases of infectious disease notified, no less than 20 have been attributed to erysipelas. Persons of all ages have been affected; from 2 months to 68 years. Seven of these cases were visited by the Medical Officer of Health in consequence of the reports received from the Inspector. One case was stated to be after vaccination; 2 or 3 followed other slight injuries, but of the majority there was no satisfactory origin discovered; and many of them were so slight that the patients themselves were unwilling to admit that they had had erysipelas. (See Winsford Report.)

Influenza.—2 deaths occurred, viz.: March 22nd, M. 47 years, complicated with heart disease; and April 7th, F. 65 years, already suffering from senile decay. Rate, 0·4.

Phthisis.—Only 1 death was registered under this designation; but in Table A., column 16, I have included 2 ascribed to "general tuberculosis;" whilst excluding 2 due to other tuberculous diseases. They are January 25th, M. 49 years; April 14th, M. 6 years and December 9th, F. 8 years; the 2 latter being the deaths from "general tuberculosis." This gives a Rate of 0·6.

Bronchitis, etc.—19 deaths were attributed to respiratory diseases. This gives a Rate of 4·1.

Heart Disease.—6 deaths; Rate 1·2.

Injuries.—4 deaths. See "Coroners' Inquests."

Alcoholism.—1 death, September 4th, M. 42 years, was attributed to delirium tremens. Rate 1·2.

Cancer.—Three deaths ; F. 67 years, and F. 63 years from cancer of the liver ; and M. 58 years from sarcoma of the anterior mediastinum. Rate 0·6.

Notifications.—See “Erysipelas.”

Isolation Hospital.—The District is still unprovided for. By pure good fortune hospital accommodation has not been required during the past year, and therefore the question has naturally slipped into the background. In this volume, reference to the Knutsford Report will show of what immense value a hospital can be, and reference to the Biddulph Report will show how difficult it sometimes is to induce people to realise, and take advantage of, the assistance offered. Considerably more than 12 months ago this District intimated its willingness to join the Northwich Urban District in providing a Fever Hospital ; and the carrying out of the work was left to the Northwich Urban Council. So far as I am aware, nothing further has been done ; which makes it appear as though that Council was not disposed to treat the matter seriously. I hear that at the February meeting of the County Council another attempt will be made to induce that body to exercise its powers under the Isolation Hospitals Act 1893, by constituting a Joint District for the two recalcitrant Councils, Northwich Rural and Winsford Urban. Should this be successful it will change the whole position for this Council ; and it will undoubtedly be to their advantage to join in the County Council's scheme voluntarily ; for it is very desirable to have one thoroughly efficient hospital for all the Authorities in the Northwich Union, rather than for smaller combinations to provide more numerous, but smaller, less efficient, and less satisfactory hospitals.

Systematic Inspections.—The District, being a small one, is well looked after by the Inspector, who knows it thoroughly. Personally I cannot claim to have done very much during 1899, except where specific matters have required investigation.

Ashpits, etc.—I am not aware that any improvement has taken place during 1899.

Refuse Removal.—See Inspector's Report.

Peat-Pails.—11 of these admirable sanitary conveniences are in use. Why they are not being more rapidly adopted, it is hard to say. (For full particulars, see Biddulph Report, 1898.)

Sewage Works.—These remain in their usual unsatisfactory condition. I have neither been asked to advise, nor permitted to interfere. I am under the impression (but even of this I am

not absolutely certain) that 2 or 3 members of the Council, as a sort of Sub-committee, have during the year been carrying out some small alterations. Nothing however that has been done has in my opinion resulted in any permanent benefit whatever. On the five occasions during 1899 when I inspected the works, the sewage was every time being discharged into the river without any treatment. I was informed that the County Medical Officer of Health also inspected the works in the beginning of November, but I do not know what he thought of them, or whether he made any report. The Council appears to be quite oblivious of the fact that I have devoted 3 years to a close scientific study of sewage treatment, and am exceptionally competent to advise them. I blush to have to speak thus of myself; but apparently it requires very straightforward speaking to make it clear that I have no responsibility myself in this matter at all.

River Pollution.—See last paragraph.

Dwelling-Houses unfit for Habitation.—There are unfortunately a number of these in the town. Many of them have been reported to the Council more than once. In one case, a block of 4 back-to-back cottages at Newton Bank, the Medical Officer of Health has handed to the Council, twice if not three times, formal representations in writing under Section 30 of the Housing of the Working Classes Act 1890, and this has been supplemented by a certificate from the Surveyor to the effect that the building is structurally dangerous; but no definite action has been taken. Pending the solution of this question the Medical Officer of Health has not thought it worth while to make other formal representations, though there is probably considerable scope for them.

Water Supply.—This is in the hands of the Council itself. The water-works completed in 1896 continue to yield a supply satisfactory in quality, but now found to be, especially in dry weather, deficient in quantity. The question of boring to increase the supply is under consideration.

Dairies and Cowsheds.—Systematic inspections have been made by the Medical Officer of Health and Inspector, and their reports have received careful consideration. Without issuing formal notices under the Dairies Order, some improvements have been obtained, and in one case in particular the use of an unsatisfactory building was entirely discontinued. This matter will continue to receive attention, but it is one in which progress must necessarily be slow.

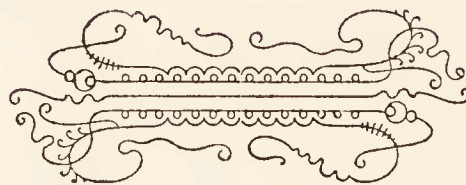
General.—As this Report happens, by chance of the dates, to be the last one written of the 5 in this Volume, it has been possible in many places to refer readers to paragraphs in other

Reports accompanying it, or in preceding Volumes, to save useless repetition. If such paragraphs be "read into" the body of this Report, it will be found I think that this District is being provided with quite as much food for thought as any of its neighbours; though the actual number of pages in print may appear fewer.

T. W. H. GARSTANG,

M.R.C.S., D.P.H.

February, 1900.



INSPECTOR'S REPORT.

Scavenging.—The removal of ashes is carried out by the Council's own men and horses, and gives every satisfaction. The contracts for the removal of nightsoil expired in June last, when the Council decided to do this work also by employing their own men and carts ; the results have been very satisfactory.

Common Lodging-houses.—These are periodically visited and carefully supervised.

Slaughter-houses.—Every care is taken to see that the occupiers keep their premises clean and well white-washed.

Bake-houses.—These have been regularly inspected, and in some instances sanitary defects have been pointed out, and changes for the better have been made.

Canal-boats.—During the year, 206 boats have been inspected. The number of infringements of the Acts found was as follows :—faulty certificates, 8 ; repairs and painting wanted, 7. The number of women and children found on board was 153 ; 26 children being of school age. No case of infectious disease was met with during the year.

THOMAS HENSHALL,

Sanitary Inspector.

February, 1900.

(A) Table of **DEATHS** during the Year 1899, in the Middlewich Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)	
Whole District	84	32	3	6	2	20	21	{ Under 5 ... 5 upwards ...
TOTALS								{ Under 5 ... 5 upwards ...

The subjoined numbers have also to be taken into

Deaths occurring outside the district among persons belonging thereto.	2	...	1	...	...	...	1	{ Under 5 ... 5 upwards. ...
Deaths occurring within the district among persons not belonging thereto.	6	5	...	1	...	...	...	{ Under 5 ... 5 upwards. ...

(B) Table of **POPULATION, BIRTHS, AND OF NEW CASES OF**
of Health during the Year 1899, in the Middlewich Urban District;

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Last Census. (b)	Estimated to middle of 1899. (c)	Registered Births. (d)		Small-pox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Croup. 4
Whole District	4001	4650	161	{ Under 5. 5 upwds.	...	1 1	...	...
TOTALS				{ Under 5. 5 upwds.				

State here whether "Notification of Infectious Disease" is compulsory in the District,—Yes.

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																					
Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever	Phthisis.	Bronchitis, Pneu- monia, & Pleurisy	Heart Disease.	Influenza.	Injuries.	All other Diseases.	Total.
				Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
...	...	...	...	...	...	...	...	...	...	...	...	...	11	...	...	7	1	...	1	15	35
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	3	12	5	2	3	22	49

account in judging of the above records of mortality.

...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	2	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1

INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer
classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.													Number of such Cases re- moved from their Homes in the several Localities for Treatment in Isolation Hos- pital.	
FEVERS.					Cholera.	Erysipelas.	12	13						
Typhus.	Enteric or Typhoid.	Continued	Relapsing	Puerperal.										
5	6	7	8	9	10	11								
...	...	...	...	...	...	3	...	...						
...	1	...	...	...	...	17	...	...						

SUPPLEMENTARY TABLE I.

Shewing Births, Birth-rate, Deaths, and General and Zymotic Death-rates, and compared with average of last 10 years ; and Deaths in Old Age and Infancy, and percentages of these to Total Deaths ; for the Year 1899.

TOTAL.			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
Births.	Deaths	Zymotic Deaths.	Average.	1899.	General.		Zymotic.		At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
					Average.	1899.	Average.	1899.				
161	80	10	37·0	34·6	17·3	17·2	1·9	2·1	22	27	28	34

SUPPLEMENTARY TABLE II.

Shewing Deaths, Death-rates, Deaths from Special Diseases, and Old Age and Infantile Deaths, in the Four Quarters of the Year, 1899.

QUARTER ENDING.	Total Deaths.	Rate.	DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.		ZYMOTIC DEATHS.		Phthisis.
			At 65 Years and up- wards.	Under One Year.	At 65 Years and up- wards.	Under One Year.	Diarrhœa.		
							Number.	Rate.	
March 31	24	21·0	8	7	33	29	0	—	1
June 30	16	13·8	3	6	19	38	0	—	1
Sept. 30	21	17·9	5	9	24	43	9	7·7	0
Dec. 31	19	16·2	6	5	32	26	1	0·8	1

SUPPLEMENTARY TABLE III.—BIRTHS.

				M.	F.	Total.	Rate.
1st Quarter	...	...	...	29	26	55	48·0
2nd „	...	...	...	24	14	38	32·8
3rd „	...	...	...	15	19	34	29·0
4th „	...	...	...	8	26	34	29·0
				76	85	161	34·1

SUPPLEMENTARY TABLE IV.

Shewing position of Middlewich in the County in 1898, compared with 35 other Urban Districts.

	Best of 36 Urban Districts	Worst of 36 Urban Districts	Middle- wich Figures.	Place of Middle- wich in the List.
Birth Rate	35·5	13·5	35·2	2
Death Rate	7·7	22·3	14·9	17
Zymotic Death Rate	0·0	4·4	3·4	34
Infantile Mortality	50	235	159	19

DETAILS OF DEATH RATES.

It may be found interesting to divide up the death-rates into their constituent parts, for purposes of further comparison. This is done in the following Table.

DEATHS FROM	Bucklow Rural.	Biddulph Urban.	Knutsford Urban.	Middlewich Urban.	Winsford Urban.
Seven Principal Zymo- totic Diseases }	0.81	3.10	0.60	2.20	1.60
Other Infectious Dis- eases }	0.13	0.50	0.20	—	0.20
Phthisis... 	1.00	1.03	1.00	0.65	1.20
Influenza 	0.81	0.50	0.20	0.40	0.28
Respiratory Diseases ...	2.20	2.90	3.30	4.10	2.40
Heart Disease	1.60	1.37	1.80	1.30	1.10
Violence 	0.43	1.13	—	0.80	1.00
Alcoholism 	1.70	—	—	0.20	—
Cancer	0.70	0.69	0.80	0.65	0.64
Infantile Deaths not included in any of the above ... }	1.80	3.74	1.60	2.80	2.48
Senile Deaths not in- cluded in the above }	2.15	1.20	2.70	2.40	2.40
Miscellaneous	0.97	2.74	5.10	1.70	1.80
	14.3	18.9	17.3	17.2	15.1

T. W. H. GARSTANG,

February, 1900.

(See also Table on p. 4).



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